AN

IMPROVED SYSTEM

OF

BOTANIC MEDICINE,

FOUNDED

UPON CORRECT PHYSIOLOGICAL PRINCIPLES;

EMBRACING A CONCISE VIEW OF

ANATOMY AND PHYSIOLOGY;

TOGETHER WITH

AN ILLUSTRATION

Of the New Theory of Medicine.

BY HORTON HOWARD.

IN TWO VOLUMES.

VOL I.

COLUMBUS:

PUBLISHED BY THE AUTHOR.

Charles Scott, Printer.

1832.

DISTRICT OF OHIO, *to wit:*

BE it remembered, that on the 14th day of February, Anno Domini eighteen hundred and thirty-two, HORTON HOWARD, of the said district, hath deposited in this Office, the title of a book, which is in the words following, to wit:

"*An Improved System of Botanic Medicine, founded upon correct Physiological Principles, embracing a concise view of Anatomy and Physiology; together with an Illustration of the New Theory of Medicine. By Horton Howard. In two volumes.*"

The right whereof he claims as author and proprietor, in conformity with an Act of Congress, entitled "An act to amend the several acts respecting copy rights."

ATTEST,

WILLIAM MINER,

Clerk of the District.

PREFACE.

In presenting to the public a new work, upon the very face of which is stamped the impress of novelty and innovation, I have assumed it as granted, that a concise history of the circumstances and motives which led to its publication, would be not only interesting but useful to the reader.

From exposure in early youth, my health became much impaired, and my constitution weakened by sickness; insomuch that from the age of thirteen to twenty-one, I was a constant prey to disease, and all its concomitant ills—its pain and anxiety—its gloomy forbodings, and the repulsive prospect of a slow decay. During this period I not only applied for medical aid to the best physicians of my native state, (North Carolina) but I devoted a portion of my time to the study of medicine, in the hope not only of finding something to mitigate my sufferings, but also of acquiring the knowledge of a useful and honorable avocation for life. Stimulated by these earnest hopes and sentiments, I prosecuted my book studies, aided by the best physicians of my acquaintance, until I had acquired a competent knowledge of the practice of medicine.—But alas! my fondest anticipations were but idle dreams: neither my books, nor my physicians, brought that relief—that grateful solace to my sick-worn frame, which I so ardently desired, and so anxiously sought from their aid!

By these means, however, I became acquainted with the members of the medical faculty, by which was laid the foundation of a most familiar intercourse with the profession, in almost all places where I have since resided. Moreover, I became acquainted with the appalling fact, that with all the knowledge which I, or the best medical practitioner possessed, and with the use of such remedies as were generally relied upon in the treatment of disease, it would be a matter of uncertainty whether I should cure or kill! With these sentiments indelibly impressed upon my mind, I abandoned the idea of following a practice, which could only be pursued at the hazard of destroying life; and which could not, therefore, be termed, as Asclepiades styled the patient observation of Hippocrates, "a meditation on death," but was absolutely an acceleration of its fatal progress. My health was finally restored by a peculiar kind of regimen which will be particularly described in my medical work.

From these considerations, and from these alone, I abandoned the idea, of following the practice of medicine as a profession; although I have practiced very considerably among my immediate neighbors, more especially in sickly seasons; but for which I have never charged, nor have I ever received, any compensation.

In the summer of 1825, the bilious fever prevailed epidemically, which swept off numbers of my acquaintances, amongst whom I lost a lovely daughter, whose death, I have no doubt, was accelerated by bleeding; which, at the instance of consulting physicians, I reluctantly consented should be done. Other branches of my family, as well as several of my neighbors, suffered by the same epidemic, all of whom recovered by the assistance of such medical aid as I was *then* capable of affording them; which indeed I had reason to believe was at least equal to any that could have been derived from any other source.

About the time of which I am now speaking, or soon after, I heard much talk of the botanic physicians, usually styled *steam, or patent doctors;* and as prejudice in the mind of the multitude, often goes in advance of almost every great and good work, so it was in this instance; and myself with the rest, and particularly with the medical faculty, imbibed prejudices the most hostile, and feelings the most contemptuous, towards this infant institution of rational medicine. I still very sensibly recollect with what supercilious disdain I then looked down, as I thought, from my lofty eminence, upon the botanic practice and practitioners of medicine. For however I had, with many great physicians, felt and deplored the imperfections of the healing art, I could not for a moment suppose, that the improvement which it so imperiously demanded, would, or possibly could, originate at any other source than the fountain-heads of medical science.

But I was not destined long to remain the slave of my prejudices, or the deluded victim of my own blindness and folly. A case occurred during the ensuing winter, which overthrew the strong citadel of my prejudices, and opened to my astonished vision new and extraordinary views of the healing art, directly opposed to the opinions taught in the fashionable schools of medicine. A respectable neighbor of mine, Isaac Bunker, was taken very ill with a pleurisy, attended by symptoms of obstinate bilious fever; and as I had successfully attended his family during the summer, he called upon me in his own case. I accordingly attended, resorting to the usual remedies administered in such cases; but finding it a complicated formidable case, and my business requiring my absence from home, I advised him to call in the best medical aid that could be obtained, which I thought his dangerous complaint imperiously required. On the morning of the day on which I contemplated leaving home, I called to see and take leave of him, and to my utter astonishment and

indescribable horror, found a steam doctor preparing to take the sick man through a process of steaming, puking, &c. On seeing this, I turned upon my heel with the most disdainful and disgusting emotions, with the intention of immediately leaving the house, and the sick man to perish, as I supposed he probably would, in the hands of this adventurous empiric of the botanical school. But by the earnest entreaties of my sick neighbor, and the solicitations of the ignorant steam doctor, as I then thought him to be, I reluctantly consented to stay and witness the operation and effects of the new mode of curing disease wholly with botanic medicine, aided in its effects by the use of vapor or steam.

I then carefully examined the symptoms of the sick man, found there was no abatement of their violence, and waited to see the result of the process to which he was, as I thought, presumptuously submitting. But after the operation was completed, I again examined him, and felt myself astonished and confounded at the extraordinary effect which had been produced in so short a time. The fever was gone, the pain of his side was almost removed, the difficulty of breathing gone, the headache gone, and his appetite for food returned. My prejudices, which alone had prevented me from giving this new system an impartial examination, were thus, in a moment, scattered to the four winds of heaven; whilst I was overwhelmed with reflections of my own want of liberality and consistency.

I had now been an eye witness to such sudden and salutary effects of medicines as I had reason to believe were unknown to the faculty of Europe or America. Impressed with these views, I came to a serious pause. I knew full well the inefficiency of the common means resorted to in the treatment of disease; I had but a few months before, lost a beloved daughter, and had again and again seen patients languish for weeks and even months, under less formidable attacks of disease than that of my neighbor, of whom I am speaking, whilst he seemed in a fair way to get up in a few days, which he actually did. I felt that I owed a duty to myself and to my family, and that to my Maker I was accountable for the neglect of that duty. I paused—I reflected—I weighed the whole matter seriously. I had seen the effects of the new medicines in but one case; but that was one of virulent character, and it yielded to the means employed, as if they acted by a charm: I came to the conclusion that it was my duty as a man, and as a Christian, to forego all my prejudices, and avail myself of the knowledge of these botanic medicines, for the benefit of my own family.

I accordingly applied to Dr. Hance, the practitioner who had attended my neighbor, and from him I received the knowledge of Dr. Thomson's System of Medicine. Sickness in my own family, as well as amongst

my neighbors, and friends in distant parts of the country, soon afforded opportunities which confirmed my highest opinions of the new practice; and I commenced, with zeal and energy, proclaiming my convictions to the world. I pursued this course because I believed that mankind would be benefitted by the new system, and that it was my duty to encourage its promulgation.

During this time, however, Dr. THOMSON had become dissatisfied with his agent, and came into this country in order to make some permanent arrangement for the extension of his system. My zeal and assiduity in recommending his practice, had been wafted by the breath of the people, to the ears of THOMSON, and he conceived the idea of committing to my care the general agency of his business. After repeated solicitations from him, and the most earnest persuasions of the friends of his system, I consented, with extreme reluctance, to become his agent.

I almost immediately took measures for prosecuting the business to an extent commensurate with its usefulness; and pursued it with a vigor and energy, only equalled by the desire which I felt to make it beneficial to the world. But whilst I was thus zealously pushing the business entrusted to my care, the jealousy of Dr. THOMSON was aroused, and I was dismissed from the agency, at the end of about three and a half years from the time of accepting the appointment. I had, however, from the first, seen and deplored the imperfections of Dr. THOMSON's book, and the circumscribed limits of his materia medica; and under the influence of these impressions, I employed Dr. HANCE to revise the practical part of Dr. THOMSON's works, previous to their being reprinted. But with further reflection upon the turbulence of his disposition, and his self-conceit, I became satisfied that it would give him dissatisfaction, and therefore concluded best not to publish the work thus revised: and subsequent declarations of THOMSON have fully confirmed the correctness of my conclusion.

I was not satisfied, however, that the knowledge of botanic medicine should remain in so imperfect a state. Societies for its improvement, were instituted; and I endeavored to excite an emulation in the minds of its practitioners; and took much pains to collect a knowledge of every improvement, and every additional article of value, which experience should develope; all of which, I confidently anticipated, would enable me, at some future time, to present to the world a better system of medicine than had hitherto been offered to its acceptance and approbation.

And it is under these circumstances, and with these views, that I now present to the public, in the following work, the result of my collections and labors. It is not pretended nor supposed that the work has arisen to the acme of perfection; but it is confidently believed, that it will be found

superior to any other which has preceded it; and as such I commit it to that test which will decide its merits, and give its decision at the bar of public opinion.

I also deem it an act of justice to the public and to myself, as well as to Dr. WILLIAM HANCE, to state that he has assisted me in the collection of materials, and in their selection and arrangement for this work. His zeal in the improvement of medical botany; his deep research and laborious investigations; his new, peculiar, and as I conceive, correct views of the principles of medical science. the very foundation upon which the healing art is based, have been of great service, nay, of indispensible utility to me in the preparation of the following pages. My time and attention for some years past have been necessarily too much engrossed, in diffusing the knowledge of the botanic system, to permit of my devoting so much of them as seemed necessary, to the research, investigation and consideration of a subject so interesting to the family of man. And it is no more than a just tribute to the merits of Dr. HANCE to say, that the continuance of his labors, may hereafter be still more beneficial to the world. And I should feel myself guilty of injustice to his character and to that confidence which the public has justly placed in his talents, did I omit acknowledging, in this manner, that he is more justly entitled to the authorship of this work than myself; and I intended that his name should have gone to the world as its author; but to this his modesty has induced him to refuse his consent. True I have been at all the trouble and expense of collecting the materials, and preparing the work for publication; in other words, of bringing it into existence; and from time to time, have verbally or in writing, communicated my views of the various subjects on which it treats, (which have generally been in accordance with his own;) and I wish it to be distinctly understood, that it is upon these considerations alone, that I claim the authorship as my own.

It may also be proper to state, that in accordance with my expectations in recommending the institution of botanic societies, much useful information has been elicited; and many of my agents, knowing that a work of this nature was in a train of preparation, have kindly furnished me with valuable medical recipes, and extraordinary cases of cure. These, with the names of those persons, so far as their consent has been obtained, will be given in their proper places.

The knowledge of many valuable Indian remedies, have been procured for this work, at considerable expense to the author.

HORTON HOWARD.

COLUMBUS, OHIO, *3rd Month 15th*, 1832.

INTRODUCTION.

As the following work treats disease in a manner different from most other medical works, at present extant, and embraces some principles peculiar to itself, it is deemed proper, as introductory to the more important parts, to advert to some of the objects at which we shall aim, and the views by which we shall be governed.

Our grand leading object shall be, to simplify the theory and practice of medicine, so as to adapt it, as far as practicable, to the capacity of families; thereby enabling them, in most cases, to become their own physicians. The civilized world, at least, has been too long and too much dependent upon physicians; and it is high time that the prejudices which have held mankind to this dependence, should be broken and annihilated. And there are no means by which this can be accomplished, but to reduce medical works to something more "plain, intelligible, and systematic; showing medicine, as it ought always to have been shown, divested of all mystery; needing for its successful application to practice, no extraordinary powers; no legerdemain; nothing but common sense, with common study and observation."* None but works bearing such a character as this, can become very useful or popular; and a work such as this, we propose, and stand pledged, to give to the world.

A very important objection to most medical works is, the use of what are styled *technical* terms, which render them unintelligible to families in general. The extensive use of such terms is certainly improper; but as it is impossible to convey definite ideas upon every subject treated upon in medicine, without resorting to the use of some technical terms, we shall sometimes use them; always, however, endeavoring to introduce them when practicable, in such a way that the reader will be assisted by the phraseology to gather the meaning of the word. A glossary will also be annexed, to which the reader may refer when necessary.

We shall be the more liberal in the use of technical language, because we believe that it ought to be more generally understood. The only reason why people in general are not sufficiently familiar with technical terms to comprehend all that is necessary about

*Thomas Ewell.—Medical Companion, page 20.

medicine, is, because this essential part of *every* man's and woman's education, has been made through the medium, or under the cloak of science, too abstruse and metaphysical for the great mass of mankind to comprehend. A great responsibility must certainly be resting upon those who have been instrumental in concealing under a dead language, the knowledge of any thing so important to the world. A correct knowledge of the best means of preventing sickness and restoring health, is only second in importance to a correct knowledge of the Christian religion. Every family has, or may have, a bible; and why not have a book adapted to their capacity, on medicine?

Had physicians made it their business to enlighten mankind upon this highly important subject, instead of "darkening counsel with words without knowledge,"* mankind unquestionably would not only have been familiar with all necessary technical terms, but they would also have been acquainted with, and known how to employ, the best means of removing their maladies. But is this the case? No. There is nothing of inferior importance in the common concerns of life, which they are less acquainted with!

It is a principal object of the following work, to restore to mankind the lost knowledge of the means of restoring their health.—This knowledge ought to be as universally disseminated as the knowledge of the bible or of religion; and we scarcely doubt but that, in time, it will be so. The illiberal part of the medical faculty, who have profited by the ignorance of the people, no doubt will throw every obstacle they can in the way of its consummation; but we think the time is now come, which is alluded to, as in prophetic vision, by the brief biographer of Dr. John Brown, "when instruction concerning the cause of health and disease, will be acknowledged to form a necessary part of all rational education."

It has hitherto been the case, as the same author observes, that the "members of the faculty have contrived to retain a privilege which the priesthood has lost." It is but a few years since it was generally believed that all the concerns of religion legitimately appertained to the clergy; and the bible, which was regarded as the means of salvation, was printed in a dead language, and was considered as fitting only to be entrusted in the hands of the priests. They then exercised the same despotic sway over the minds of the people, in matters of religion, that the medical faculty now do in medicine. But the time has arrived, when the people will have books on medicine, which they can understand, and a mode of practice which they themselves can apply and comprehend. They will no longer be obliged to go to the doctor for every dose of medicine which the exigencies of sickness may require, any more than they are necessitated to go to the clergy for a knowledge of the bible or the means of salvation.

*Job, 38 chapter, 2 verse.

The bible, which is now within the reach, and its benefits within the grasp, of every family, informs us, that the "grace of God, which bringeth salvation, hath appeared to all men;" or, in other words, that the means of saving the immortal soul are bestowed upon all; and so there is no doubt that the means of saving the body from pain and sickness, are, to a great extent, provided for us, without the necessity of applying to a physician. And a system of medicine, in accordance with these sentiments, is already before the world, for its adoption or rejection; and many have already embraced it; rejoicing in the certain confirmation of being now relieved from the thraldom of medical bondage and scientific imposition which, for ages, has been accumulating, and seems, in this enlightened day, to have arrived at a degree of oppression, equalled only by the superior scientific attainments of the profession.

In the following work, we propose taking a transient view of anatomy and physiology, sufficient, perhaps, to enable the reader to form a general idea of the most important organs of the human system, and of the functions which they perform. It is for the mass of mankind that we write; and there are few whose leisure or inclination will permit them to acquire any considerable minute knowledge of those subjects; and, therefore, we have deemed it not improper to present a mere outline of those curious sciences. Persons who wish to obtain more extensive knowledge of this kind, may find numerous works, of perhaps equal merit, on both these subjects, each containing something peculiar to its author.

We cannot, however, omit, in this place, noticing the popular but delusive sentiment almost universally adopted in civilized communities, that a knowledge of anatomy is indispensable to form an accomplished physician. We might, perhaps, be considered as making an invidious assertion, should we charge the members of the medical profession with inculcating such prejudices into the minds of the people, for the purpose of increasing their own importance and wealth. But we trust that a majority of the reflecting part of community can call to mind evidence enough to establish at least a reasonable suspicion that such is the fact.

We are not disposed to believe that all, or even any considerable portion of the medical faculty, are aware of the iniquity of such a practice, or that they are even guilty of it. The selfishness of man will almost always furnish an excuse sufficient to quiet the conscience in the prosecution or promotion of whatever is popular, especially if it be, at the same time, productive of personal aggrandizement, or of pecuniary gain.

In order the more fully to comprehend the uselessness of anatomy in the practice of medicine, we will propound a simple question, covering the whole ground, and then submit a plain, unsophisticated answer thereto.

Q. In what does the knowledge of the healing art consist?

A. Simply in knowing what medicines are most efficacious in removing disease, and the best method of preparing and using them. This is the whole sum and substance, root, body, and branch of medical science or learning. The physician who possesses this knowledge, has all that appertains to the knowledge of medicine.

If we suppose the knowledge of medicine is to be acquired by the simple powers of reason alone, unaided by experience, which, however, would be an impossibility, we should then expect it necessary to know upon what it was that life and health depended; and then what peculiar quality of vegetable matter was best calculated to restore health, and the particular vegetables in which it resided. But would anatomy teach us this knowledge; or, after becoming acquainted with suitable medicines, does it teach us how to use them? No: nor it never can. It is not in the nature of things for it to be so.

We have seen that the powers of reason must fail, and that anatomy is inapplicable to demonstrate the knowledge of medicine; and we will now inquire what presents the most feasible method of obtaining a knowledge of the means of restoring health. All will agree, we presume, that experience is the most rational, as it is indeed the only possible, method of attaining to any degree of certainty in the knowledge of medicine. If we suppose ourselves divested of all knowledge of remedies suitable for restoring health, with disease and death exciting our sympathies, and urging us to the employment of some means to relieve the sufferings of our friends and fellow creatures, we might reasonably expect to promote the havoc of death, rather than to arrest the progress of disease. Under such circumstances as these, nothing but *experience* conld relieve our embarrassment, and give us the assurance, in our attempts to relieve the maladies of our fellow man, that we were not using an instrument of death instead of a remedy friendly to life and health.

And now, I will ask, what advantage could the most perfect knowledge of anatomy afford us in the prosecution of our inquiries after the means of curing disease, when guided by reason alone? or what benefit could we possibly derive from it, in the progress of more laborious experiment? None. We answer, none!

It is a fact often avowed by medical writers, that the knowledge, not only of anatomy, but of all the collateral branches of medical science, afford little or no aid to the improvement of the *materia medica*. Even chemistry, which is the only branch legitimately applicable to this object, is known to be insufficient to disclose the medicinal qualities of vegetable matter. "Medical chemistry," says Dr De Puy, "is so limited in its application to the vegetable kingdom, that, notwithstanding all that has been, or as yet can be done, by heat and mixture, towards separating and ascertaining those principles of vegetables on which their active powers depend,

we must still have recourse to *prescription* for a knowledge of their effects on the human system, which we cannot obtain, *a priora*, by chemical analysis."*

If then, all the sciences considered so essential to medicine, afford no means of arriving at the knowledge of the most necessary part, how are we to obtain an understanding of the nature of medicines, and of their salutary effects upon the human system? We answer, again, by experiment. But let it not, however, be inferred that we suppose a perfection of this knowledge can be acquired by one individual. It requires more time, and more sagacity, than is allotted to one man, to consummate the knowledge of the healing art. This important object can only be accomplished by collecting the experiments of different individuals of different countries and climates, and judiciously comparing their results; all of which should be again and again confirmed by further experience, before any thing is admitted formally into practice.

"Experience," says the author just quoted, "respecting the virtues of medicines, is necessarily slow and sometimes deceptive; hence, it is often long before the real medicinal properties and extent of the powers of a remedy are correctly ascertained."—And by whom, we will ask, is this "experience" acquired, and these "properties" and "powers" ascertained? The true answer to this inquiry is as degrading to the lofty pretensions of medical science, as it is humiliating to those who make a boast of it. For science, much as it may have benefitted the world, and added to the intellectual pleasures of man, and been admired for its beauties and precision, must, with all its splendid drapery and trappings, very often bow in abject submission to the experimental knowledge of some illiterate rustic.

And however humiliating it may be to the scientific aspirant, it is nevertheless too true, that science often misleads its votary, by a too fine and subtle reasoning, which the bold, unlearned experimentor avoids, by going without any circumvolutions, to the root or primary principle of unknown things. He often overturns old and long established forms—forms which perhaps have been sanctioned by the usage of ages, and which, therefore, the man of science dare not attempt, to arrive at some truth which the forms of science have kept hid from its most devoted students.

The most essential part of the healing art, and without which this art would not exist, consists, as before observed, in the knowledge of the most simple, safe, and efficacious medicines The author whom I have several times quoted, informs us, that "many of the most useful medicines have not received a formal and *scientific* introduction into the Materia Medica, until they have served for

*Transactions of the Physico Medical Society, New York, vol. I, p. 57.

a length of time in some subordinate station, and have gradually become distinguished amongst the confused group which compose the recipe of the vulgar." The reputation of every "useful medicine," we believe "has been confined to that humble sphere to which professional [scientific] pride seldom stoops, and which is too frequently disregarded by medical men as unworthy of notice."

The most minute and perfect knowledge of the organs of the human system, and of the functions which they perform, cannot possibly give us an understanding of the means of removing, with medicine, a single disease. It is difficult to conceive how an acquaintance with the structure of the human frame can lead to the knowledge of the means of removing its maladies. It may possibly lead us to a knowledge of the organs diseased; but no correspondence can be pointed out between a disease, or an organ diseased, and its proper remedy; and it is only by observing the effects of a remedy that we can point out its adaptation to any particular complaint.

But still popular opinion, strengthened by the devices of the faculty, requires that a physician should possess a knowledge of anatomy; and, with equal propriety, it might insist upon cooks acquiring the same knowledge, to enable them rightly to understand the best means of removing hunger. The physician, in the one case, and the cook, in the other, (although the one may understand how to cure disease, and the other to remove hunger,) cannot tell by what particular means, or in what peculiar manner, medicine is disposed of in the system to remove disease, or food to remove hunger. But both may be done, as Dr. Samuel Thomson observes, "by an infinite variety of articles best adapted to those different purposes."

The physician, however, may remove disease, and the cook hunger, with substances not the "best adapted" to those purposes, and thereby put to hazard the living power of the system. And therefore those kinds of food which *experience* has shown to afford the most easy, agreeable, and natural stimulus to the various organs, in all the varying circumstances of life, are always to be preferred; and "those medicines," says Dr. Thomson, "that will open obstruction, promote perspiration, and restore digestion, are suited to every patient, whatever form the disease assumes, and are universally applicable," the proper knowledge of which must be acquired by experience.

And although a physician may possess a most perfect knowledge of every disease which he may be called upon to cure, and may know, and be able to describe with the utmost accuracy, every part or organ affected by the disease, and define their functions, yet all this does not necessarily bestow upon him a knowledge of the means of affording relief: this *sine qua non* of the healing art, must be acquired by personal observation, aided by the experience of others.

Indeed a man may possess the most extensive knowledge of anatomy, and all the collateral sciences of medicine, and yet be a miserable physician! Diseases arise from causes producing one common effect, viz: reduction of the living power, and injury of the animal machinery; and are, of course, to be treated by general remedies acting upon general principles, unaided and uncontrolled by the sciences of anatomy, physiology, chemistry, or pathology.

We do not wish to be understood as passing a sweeping condemnation upon the study of those sciences, as utterly useless. We are only endeavoring to exhibit, in its true colors, the popular prejudice which leads mankind into the erroneous belief that these, and particularly anatomy, are absolutely necessary to make a successful physician. The study of those sciences, like the acquisition of all other general knowledge, has a tendency to expand the mind, and enlarge our views of things—to add to the intellectual treasures and pleasures of the *man;* but to the *physician*—the medical practitioner, in the treatment of disease, it surely gives nothing. Dr. RUSH must certainly have been sensible of this, or he never could have uttered the sentiment, that those physicians generally become the most eminent, who have soonest emancipated themselves from the tyranny of the schools of physic. We might also add, that many of the most successful practitioners in our country are self taught, having never been admitted into the splendid halls of science, or the common walks of literature.

The impression that the ancient physicians were as successful in the treatment of disease as those of the present day, we believe, is founded upon good evidence; and yet their knowledge of anatomy as well as of the collateral branches of medical science, as they are taught at the present time, was undoubtedly very limited and inconsistent.

It may be contended that a knowledge of anatomy is necessary to the proper understanding of pathology, or the description of diseases, and in operative surgery, which we can cheerfully admit. But we consider pathology, in its scientific acceptation, as an intricate study, encumbered by a mass of abstruse, useless lumber, of no consequence to understand; and if understood, inapplicable to any of the practical purposes of the healing art.

In the practice of operative surgery, a knowledge of anatomy is not only useful, but essentially necessary. But for all practical purposes, as the "illustrious CHESSELDEN" observes, anatomy "needs not many tedious descriptions nor minute dissections; what is most worth knowing is *soonest learned*, and least the subject of disputes; while dividing and describing the parts, more than the *knowledge of their uses requires*, perplexes the learner, and makes the science dry and difficult." These were the sentiments entertained by the most celebrated anatomist of his age; and we have no doubt but that every candid physician and surgeon, at the present day, would,

with a little reflection, respond to their correctness. But alas! alas! the moral feelings of many have become so much depraved, that they will often, especially with popular opinion running in their favor, openly encourage, or secretly connive at, whatever may have a tendency to promote their wealth, power or importance, however detrimental it may be to the interest of society at large! In support of this, we need only cite the reader to the persecutions raised against the reformers of medicine, amongst whom we may mention HARVEY and BROWN, formerly, and Dr. THOMSON, of the present day. We wish, for the honor of human nature, that the treatment which these benefactors of the world have met with from the medical faculty, whose errors they were exposing, could be lost in oblivion: but they cannot. They will remain on the page of history, as lasting monuments of the folly, the selfishness, and the baseness of man.

We wish it to be distinctly remembered, however, that although we admit, with all its force, the fact, that the knowledge of anatomy is necessary to the operative *surgeon*, yet we as certainly know, that by a proper course of medical treatment, many painful and dangerous surgical operations may be prevented—the amputation of many limbs, and the excision of many cancerous and other tumors avoided. Indeed, we are morally certain, that by a more rational and correct method of medical treatment than has hitherto been known to the medical faculty, much pain, sickness, and danger, may be prevented; and many persons thereby saved from premature death.

The *mere* man of science, perhaps may startle at the views which we are here disclosing of the inutility of scientific attainments.—He may be ready to conclude that we wish to level all distinctions of learning, and demolish the halls of science and literature, and even deny the advantages which have resulted from these sources to the world. But we disclaim such an intention. To science and literature, we should rejoice to see every necessary encouragement offered, not only by private contributions, but by legislative munificence, so long as each is directed to its own legitimate object. We do not wish to see science made the engine of oppression and tyranny. Our grand design is to strip the science or profession of medicine, of the glitter, the show, and the splendor, so fancifully attached to it, not only by the weak and credulous, but by individuals of every rank in society, and gradation of intellect, and exhibit it in its native colors.

It is high time that "the pillars which support this fabric of false philosophy" which has so long accompanied medical science, should be overthrown; although they might, and undoubtedly would, "subvert in their ruins the time honored prejudice of ages! The time has certainly arrived, when medicine, like religion, should be placed before the eyes of the world, stripped of all its mysteries—

all its absurdities, and professional intricacies, and appear in its dignified simplicity and rationality; open and undisguised before all who wish to examine and comprehend it.

In the following work, we shall attempt to make every thing plain and systematic; adapted to the capacity and comprehension of every rank and station. We are well aware of the feelings and prejudices with which it will have to contend; and that, without some actual demonstration of the innocency and efficacy of our principal medicines, but few will feel disposed to use them. Should our work fall into the hands of any who are unacquainted with the botanical practice, or who are fearful of using our remedies, we seriously and candidly entreat them, if unwilling to use them in alarming cases, to try them in milder ones; and we are confident that their salutary effects will increase confidence.—Repetition will add further confirmation to the confidence thus acquired, and finally give the full assurance of their vast superiority over every thing known in the healing art, as generally taught in the fashionable schools of medicine.

PART I.

OF ANATOMY, PHYSIOLOGY, &C.

As has been anticipated in our introduction, we shall take a cursory view of anatomy, in order that those whose opportunities or inclination may not permit them to peruse any of the voluminous works upon this interesting subject may have the means of acquiring some general ideas of the structure of the human system.

We shall by no means treat of physiology in the usual method of discussing that science; but shall endeavor to give, in detail, a comprehensive view of what we believe to be the only correct principles upon which the practice of medicine can be founded; in doing which, we shall also have to bring into notice the dangerous consequences often resulting from the old unsystematic method of using poisonous medicines, and of adapting some specific mode of treatment to every different disease. We shall likewise, in order to bring more conspicuously into view the new practice and its medicines, devote some attention to their efficacy, and place them in juxtaposition with the old medicines, so that their comparative merits may be seen and understood, by all who may give themselves the trouble to read.

Other subjects, in connection with the general plan of this part of the work, will also be noticed, in what we conceive to be a systematic manner; and with these remarks, we shall close these preliminary observations, and commence with our brief view, or outline of the human structure.

CHAPTER I.

OF MAN AS A PHYSICAL BEING, OR ANIMAL.

Man, whether we regard the materials of which he is composed, or the organs by which he is constituted, is a compound being.—He is at once composed of a variety of different materials, which are wrought into various organs, all of which are necessary to perfect the symmetry of the body, and sustain animal life.

This doctrine, although familiar in the walks of philosophy, is, nevertheless, but little known to those who devote but a small portion of time to reading. We trust, therefore, to be excused if we indulge ourselves in a few speculations on this subject.

As a physical being, man, and all other organized bodies, depends upon certain primary elements or principles, so blended together as to produce the different varieties of matter which we behold in the material world. And it is upon this constitution of things, that the rich and useful variety of nature depends; and without which, an uniform sameness—an uninterrupted similarity, would pervade the whole material world. But instead of one uniform, and gloomy sameness and similarity, the GREAT FIRST CAUSE designed a most pleasing variety and variation, in all the productions of Nature. And it seems most probable, that the animal creation was formed, each in its kind, perfect in all its parts; endowed at the same time, with life, together with the faculty of reproducing its own species in a peculiar manner: whilst the vegetable tribes, we think equally probable, had their origin from the seed, which was endowed with the peculiar property of abstracting from the elements the proper materials, and assimilating them together, or manufacturing them into the particular plant which each kind of seed was destined to produce.

Vegetable substances derive their elementary principles from the earth, water, and atmosphere; whilst animals derive theirs from food, water, and the air they breathe.

SECTION I.

OF THE MATERIALS OF WHICH MAN IS COMPOSED.

THE ancient physicians and physiologists, maintained that man, as well as all other organized bodies, was composed of the *four elements*, earth, air, fire, and water. This doctrine originated with EMPEDOCLES, a celebrated philosopher, who flourished about four centuries before the Christian era.*

Modern improvements in chemistry have, however, demonstrated that at least three of those substances, by the ancients termed elements, viz: air, earth, and water, are themselves formed of elementary substances; and hence, modern philosophers have transferred the term, elements, from those natural substances to which they were formerly applied, to the more simple materials of which these are composed: denying that any thing is an element but the most simple materials to which bodies can be reduced.

Agreeably to the late discoveries in chemistry, twenty-one elements enter into the composition of man. Of these, eleven are solid; three are fluid; three are gaseous, or gases; and four inconfinable. Amongst the fluid elements, water, and amongst the inconfinable ones, caloric, or the matter of heat, are still retained; but water being a compound of other elements, ought to be looked

*Good's Book of Nature, New York Ed. p. 36.

upon as a proximate, rather than a primary element. These remarks will also apply, with equal force, to several other elements, which, perhaps, may be still further reduced.

But however beautiful or correct this nice discrimination may appear in itself, it presents few advantages in treating of the compound nature of man. The materials which supply the continual waste of his body, and continue his existence, are the various articles of food, drink, and air; and these may be denominated the proximate elements of man. And from these proximate elements, nutriment, and whatever else is necessary to existence, is drawn from the food, after being properly prepared by the process of digestion in the stomach; and, from the air, after undergoing some peculiar, but unknown process, in the lungs.

SECTION II.

OF THE ORGANS BY WHICH MAN IS CONSTITUTED.

This section is devoted to what properly is termed anatomy; which, in its more general or extensive signification, implies "the dissection or dividing of organized substances, to expose the structure, situation, and uses of parts;" and is divided into animal anatomy, or zootomy, and vegetable anatomy, or phytotomy. In the sense, however, in which the term is here used, its signification extends no farther than to the doctrine of the structure of the human system. But even in this we must be very brief, only bringing some of the most obvious or important parts of the system, in review before the reader.

The most obvious general divisions of the human system are, the head, trunk, and upper and lower extremities, which are covered by the common integuments, consisting of skin, hair, and nails. These divisions are again subdivided into, or rather are composed of, muscles, glands, blood-vessels, absorbents, nerves, ligaments, and tendons, cartilages and bones, and brain and spinal marrow.

The head presents externally, the face, including the eyes, nose, and mouth; the ears and temples. Internally, its contents principally are, the brain, and commencement of the spinal marrow and nerves. The brain, being the organ of sense, is often styled the grand sensorium.

The trunk is divided into two cavities, called thorax or chest, and abdomen or belly, which contain the thoracic and abdomenal viscera, consisting of lungs and heart, in the thorax; and stomach and intestines, liver, kidneys, and their various appendages; and in females, the uterus or womb, in the abdomen. The thorax and abdomen, are divided from each other, by the diaphragm or midriff, through which passes, from above, the œsophagus or swallow; *aorta* or great artery, &c.; and from below, the thoracic duct,

arising from the concentrated tubes of the innumerable lacteal absorbents, which arise from the intestines, and the *vena cava* or great vein. The thorax is also divided into two cavities by the mediastinum; each cavity containing one lobe or division of the lungs.

There are also a great number of other vessels, subdivisions, and distinctions of vessels, in the human system, which, in this birds-eye view, cannot be noticed; all of which have their various and peculiar offices to perform, for the purpose of compounding and decompounding the various elements of man, and which are necessary for the preservation of health, and duration of his existence.

There are also some imaginary divisions of the body, which, as they are sometimes useful in describing the location of the organs, and the seat of disease, we will here introduce.

If we suppose one line drawn from the pit of the stomach down the centre of the abdomen, and two other lines transversely with this, one about two inches above, and the other about two inches below, the naval, we shall have the abdomen divided into six parts. A part of each of the two upper portions, included between the ends of the false ribs on each side, and the centre of the abdomen, is termed the epigastric region; and each side of this, are the right and left hypochondriac regions. Between the first and second transverse lines, and two inches each side the naval, is the umbilical region. Immediately below this is the hypogastric region; and on either side, the right and left iliac regions. The name of lumbar region has also been applied to the parts about the loins, which is also divided into right and left lumbar regions.

SECTION III.

OF THE USES OF THE ORGANS.

HAVING now very briefly enumerated some of the principal organs, and parts, of the human system we will proceed, as briefly, to point out some of their principal uses.

The uses of the BONES, are partly to give shape, stature, and firmness to the body; supporting it erect by the aid of the muscles, which, in this sense, may be considered as the braces of the living frame; partly to protect from external injuries, those parts which it is of most consequence to preserve, as the brain, spinal marrow, and heart; and partly to act as levers for the muscles to act upon, whereby animal motion is produced. The number of bones in the human body, is estimated at two hundred and forty-eight; the head containing sixty-three; the trunk, fifty-three; the upper extremities, sixty-eight, which includes the four *sesamoid* bones sometimes found in the thumbs; the lower extremities, sixty-four; which also includes

the four *sesamoid* bones, sometimes found in the great toes. Bones are chiefly composed of lime.

The MUSCLES consist of distinct portions of flesh, termed fibres, which are susceptable of contraction and relaxation; and are covered, or rather surrounded, by a very thin, delicate substance, termed cellular membrane, which also in a less distinguishable form, surrounds every fibre, connects the muscles together, and unites the skin to them.

The use of the muscles is, partly to perfect the form or symmetry of the body; but principally, and most essentially, to act upon the bones, and thereby produce animal motion.

The muscles are all in pairs, excepting nine; and are estimated at one hundred and ninety-eight pairs; making in all, four hundred and five.

The GLANDS are a system of organs dispersed amongst the muscles or contained in the abdomen, and are composed of blood-vessels, nerves, and absorbents; and are designed for the secretion or alteration of some peculiar fluid. They are divided, according to their fluid contents, into mucous, sebaceous, lymphatic, salival, and lachrymal, glands. The lachrymal glands secrete (that is separate from the blood) tears; the salival glands, secrete saliva; the mucous glands, mucous, &c.

The MUCOUS glands are situated in the nose, and all the internal surfaces which need moisture; such as the fauces or back part of the mouth; the throat, stomach, intestines, bladder, &c.

The SEBACEOUS glands are situated in the face, palate, arm-pit, pubes, &c. They secrete an oily or fatty substance.

The LYMPHATIC glands are situated in the arm-pit, mesentary, groin, &c. These glands are formed by contortions or folds of the lymphatic vessels, and do not appear to secrete any kind of fluid. They may, perhaps, change the lymph, in some way or other, during its passage through them.

The SALIVAL glands are situated about the angle of the jaw, and root of the tongue. Their use is to secrete saliva or spittle, which is poured into the mouth by the salival ducts, most profusely during the act of mastication or chewing, to facilitate mastication and digestion.

The LACHRYMAL glands are situated a little above the outer angle or corner of the eyes. Their use is to secrete the fluid substance termed the tears. The tears moisten and, as it were, wash out any extraneous matter or dirt, from the eye.

The BLOOD-VESSELS are distinguished by the names of veins and arteries, including the heart. The heart is situated in the left cavity of the thorax, and is a strong muscular body, of that class denominated hollow muscles. This organ is generally regarded as the salient or starting point of the blood, whence it is propelled through the arteries to every part of the body. The heart is

divided into two cavities, called right and left *ventricles*, connected with which, at the base or broad part, are two other hollow muscles, denominated *auricles*, or, in more familiar language, deaf-ears.

The heart is the grand focus in which the blood is constantly concentrated, and from which, it is as constantly distributed to all parts of the system; passing twice through this organ in making one complete revolution in the body, in the following order, viz: The blood being returned from all parts of the system, is emptied by what are termed the ascending and descending *vena cava*, into the right *auricle* of the heart, and from thence passing into the right *ventricle*, the contraction of the heart propels it through the pulmonary artery, into the lungs. From the lungs the blood, now essentially changed, again returns, through the four pulmonary veins, into the left *auricle*, and thence passing into the left *ventricle*, the contraction of the heart propels it through the *aorta*, and its numerous branches, to every part of the body.

The branches of the *aorta* are ramified into innumerable small vessels, a part of which, termed capillary vessels, terminate in the skin at the external surface, and in the lining membrane of the internal surface, of the different cavities; the residue of the extreme arterial vessels unite with, or rather give rise to, the veins. Hence the arteries convey the blood from the heart, and distribute it through all parts of the system, whilst the veins convey it back again, to be thrown into, and purified by, the lungs, in the following order. The blood being conveyed to all parts of the body, by the arteries, is then taken up by the extreme veins which every where correspond with the extreme arteries, and these veins, as they proceed towards the heart, continually intercept each other, forming trunks, larger and larger, until they all concentrate in two large trunks, called *vena cava*, one of which has its branches from the head and upper extremities, the other from the body and lower extremities. The blood thus collected into those two veins, is, by them poured into the right *auricle*, thence into the right ventricle of the heart, whence it is destined to pass another round through the system; and thus continue, night and day, asleep or awake, during the continuance of life.

The quantity of blood in man is estimated at from 24 to 30 pounds, but this cannot be considered as exact, because the quantity varies from numerous causes.*

Arteries are distinguished from veins, by their different structure or appearance, and by the pulsation which attends all but the minute branches. In the dead subject, the arteries remain open, whilst the veins, if empty, collapse or fall together. The number of pulsations which take place in a minute varies from infancy to old age. At birth, they are reckoned at, from 140 down

*Magendie's Physiology, p. 369, Phila. Ed. 1824.

to 130; at adult age, 70 to 80; at old age, from 55 to 65. The pulsation of the arteries corresponds precisely with the beating or contraction of the heart.

There is also another set of vessels associated with the veins in the circulation, termed LYMPHATICS or LYMPHATIC DUCTS. The lymphatics and lacteals, which absorb the chyle, constitute what is denominated the ABSORBENT SYSTEM. The termination of both these sets of vessels, is in the thoracic duct.

The existence of lymphatic vessels in the system "is known in a general manner, but their utility in the animal economy has scarcely been perceived."* Their most apparent use, however, is to collect, from all parts of the body, a peculiar fluid termed *lymph*, and pour it mostly into the thoracic duct, whence it is discharged into the left subclavian vein, and thence immediately into the heart, to be again mixed with the mass of blood.

Although the termination of the lymphatic ducts is a demonstrable fact, yet their origin is as obscure as their utility. "Many conjectures," says MAGENDIE, "equally ill founded, have been made on this subject." And hence arises the difficulty of accounting for the utility of these vessels in the animal economy. One thing, however, is certain; these vessels remove something which has been deposited by the arteries, or at least receive something which has been carried out by them from the sources of nutrition, and return it again to the heart, there to mingle with the common mass.

The NERVES have their origin in the brain and spinal marrow, and are a system of organs which "convey impressions to the brain from all parts of the system, and the principle of motion and sensibility from the brain to every part of the system." In what manner these functions are performed, has never been satisfactorily pointed out.

The nerves which have their origin in the brain are termed cerebral, and are the organs of sensation; those which have their origin in the marrow of the spine or back bone, are termed spinal, and are the organs which communicate the power of motion.

The nerves all issue in pairs; of which the brain furnishes nine, and the spinal marrow thirty. It is by means of those arising from the brain, that we taste, smell, see, hear, and feel. When an impression is made upon any organ, as for instance upon the tongue, (the organ of taste) the nerves convey the impression to the brain, and we are instantly sensible of the impression. The same result follows the impression of sound, made upon the organ of hearing; of odors upon the organ of smelling, and so of the rest.

The BRAIN and SPINAL MARROW, which, from their superior importance, would seem to claim first attention, constitute but one organ; the spinal marrow being an elongation of the substance of the

* Magendie's Physiology, p. 277. Phila. Ed. 1824.

brain through the hollow of the spine or back bone. The brain, proper, is contained in the superior part of the cavity of the head formed for this organ. Between this and the commencement of the spinal marrow, lies the *cerebellum* or little brain, and is of the same use as the cerebrum or brain proper. The spinal marrow issues from the *cerebellum*, and passes through the whole length of the spine. From the brain and spinal marrow, as before observed, all the nerves have their origin, and extend themselves into such a multitude of minute branches or ramifications, that the point of a pin cannot be applied to any part of the surface without producing sensation or pain.

The use of the brain is to receive impressions made upon the organs of sense, and is the grand focus, or fountain, of sensation and perception, both corporeal and ideal. In other words, the brain is the grand labratory or workshop of the mind, in which impressions are manufactured into ideas, which are associated, compared, selected, &c. according to the taste judgment, or desires of the individual. But the manner in which the brain performs its important functions, remains yet unknown. Various theories have been proposed, which have been ingeniously and ably defended, by physiologists and metaphysicians; but all that has hitherto resulted from controversies on this obscure subject, amounts to little more than speculation.

The LUNGS are situated in that cavity of the trunk termed the thorax, which is separated from the abdomen by the diaphragm or midriff. The thorax is lined with a smooth shining membrane called the *pleura*, which is the seat of, and gives name to, the pleurisy. This membrane is, in reality, two distinct bags or sacks, which being, as it were, placed in the thorax, in contact with each other, form a septum or partition from the inner edge of the spine to the centre of the breast bone, termed *mediastinum;* which divides the thorax or chest into two cavities, one in the right, the other in the left, side. The lungs are two viscera or organs, suspended to the neck, in the two cavities of the thorax, by the *trachea* or wind pipe. The two divisions of the lungs are termed right and left lobes.

The most obvious, perhaps only, function of the lungs, is respiration, which, as defined by MAGENDIE, is that change of property which the blood undergoes by exposure to contact with the air in the lungs. The more common name for respiration is breathing, which consists in nothing more than simply inhaling the air into, and expelling it from the lungs.

The LIVER is an important organ, and supposed, by some, to be auxiliary to the lungs, in *decarbonizing* the blood. It is situated below the midriff, in the abdomen; and is divided into two unequal portions or lobes; the larger one being wholly in the right hypochondriac region, and the smaller one, partly in the same, and partly in the epigastric region. The liver is a glandular body, whose

office is to secrete bile, a fluid of vast importance in the process of digestion, and in regulating the action of the intestines.

Without stopping to inquire how the BILE is secreted or separated from the blood, it will be sufficient, in this hasty sketch, to point out its most important uses in digestion. They are:

1. "To separate the *chyle* from the *chyme*: thus chyle is never observed in the *duodenum*, before the chyme is mixed with the bile: and thus it is that oil is extracted from linen by the bile of animals.*

2. "By its *acridity* it excites the *peristaltic* motion of the intestines; hence the bowels are so inactive in persons with jaundice.

3. "It imparts a yellow color to the *excrements*: thus we observe the white color of the fæces in jaundice, in which disease the flow of the bile into the *duodenum* is obstructed, or entirely prevented.

4. "It prevents the abundance of *mucous* and *acidity* in the intestines, &c."

The STOMACH and INTESTINES, including the *œsophagus* or gullet, and mouth, constitute the alimentary canal; as it is through this tube that all our aliment or food passes, in order to yield its nutricious parts to the blood.

The stomach is situated immediately below the diaphragm, in that part of the abdomen called the epigastrium or epigastric region. Its use is to receive the masticated food from the mouth, and retain it there until the process of digestion is so far performed as to render it proper for the food to pass into the intestines. The food, thus partly digested, is called chyme.

The CHYME being poured into the intestines, the first portion of which is termed the *duodenum*, it there meets, and combines with the bile and *pancreatic* juice, which complete the process of digestion.

DIGESTION is one of the most important functions performed in the human system. Any considerable deviation from its regular action, has a ruinous influence on the health; and in consequence of the great number of organs concerned in its performance, it is liable often to be disturbed; and suffers more or less, from every disease to which the human frame is liable. It is in consequence of the concurrence of so many different organs, in the performance of one common function, that the stomach becomes the centre of sympathy in the system.

When we consider that is from the food and drink taken into the stomach, and being there properly digested, that all the fluids in the body are formed, and that from these fluids all the secretions are made, we then may be able, in some measure, to comprehend the necessity that exists for the regular and exact performance of the process of digestion.

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*The oil in the linen is probably acted on by the bile (which changes its nature) in a manner similar to the process of digestion.

We had forgotten to mention in the proper place, the use of the intestines. They contain the chyle, which is the food completely digested, and are furnished with absorbents, almost through their whole length, which take up the nutricious part from the chyle, and pour it into the thoracic duct. The grosser parts of the food, which will not serve for nourishment, or which cannot be sucked up by the absorbents, or lacteals as they are commonly called, pass on through the intestines, and are discharged by stool.

The contents of the intestines, are propelled through them, by what is termed the *peristaltic* motion. This motion is probably similar to the motion of the œsophagus in swallowing, but vastly slower. Any diminution of the force, or frequency, of this motion, must occasion costiveness of the intestines.

SECTION IV.

OF THE POWER WHICH KEEPS THE ORGANS IN MOTION, OR THE DOCTRINE OF LIFE.

We have now taken a concise view of the compound nature of man, both as to the materials of which he is made, and the organs by which he is constituted; and we have also made a hasty examination of the different uses of most of the organs, and parts of the system which we have described. We shall now turn our attention to the consideration of the power which keeps the organs in motion, and which essentially constitutes life.

We have seen that each of the organs of the system is charged with the performance of an office or function; and the performance of a function implies both an action and the power to act; as without action there could be no performance, and without power to act there could be no action. There must, therefore, be a power invested in the organs to act. It is of this power we now intend to speak, and which may be termed the living power, vital power, or power of life.

The living power is doubtless obtained from food, drink, and air; the two first are received into the stomach; the last into the lungs. There is, therefore, no power inherent in the organs to keep up those actions upon which life depends. And in this respect, man may be justly compared to a complicated machine, which is kept in motion by the application in some certain manner, of a moving power, and which finally becomes worn out by incessant action.

This view of the animal man, corresponds with the proposition of Dr. John Brown, "that *life is* [*not a natural, but*] *a forced state;* that the tendency of animals every moment is to dissolution; that they are kept from it, [not by any power in themselves, but] by foreign powers, and even by these with difficulty, and only for a little; and then, from the necessity of their fate, give way to death."*

*Brown's Elements, Sec. 72.

The correctness of Dr. Brown's Theory is too self-evident, as well as too generally admitted, to be insisted upon here. But the manner in which the "powers" which give an impulse to the human machine, are applied to the organs, remains undefined.—The power of life is drawn from the air and from our food, and is concentrated, in all its force, in the blood.* The various organs are so constituted as to be susceptible of impressions from this power, which is applied to them through the agency of the purple flood. Whether it is applied to the surfaces of the organs, or is diffused through them, or whether it is a chemical action, or something entirely different from it, seems as yet undetermined. But let its application be in what way it may, it must be subject to laws peculiar to animal life. It is, however, a matter of but little consequence, in a medical point of view, in what manner this power is applied to the organs, or what is the peculiar mode of its operation. We are sensible that without its constant application, life must very soon cease. Of food and drink we can bear the deprivation but a short time, and of air still shorter. These are the substances from which the powers of life are drawn, or they are the stimulants which, in the healthy state, keep the living machine in motion, and drive us on through life.

SECTION V.

OF THE WASTE OF THE POWER OF LIFE.

We have seen that the living power is not an innate, nor a self-created, power in the human system, but is derived from substances which, in their natural state, seem to bear no relation to, or correspondence with, the living machine. We may further observe, that the wise Author of our existence has so constituted the material world, that we are under the necessity of making some degree of bodily exertion in order to procure a part of the materials from which the living power is drawn. These materials do not grow spontaneously, nor do they grow ready prepared for our use. Our bodies also require something to protect them from the inclemencies of the weather; to which our Creator has superadded a sense of decency which requires us to keep them covered. He has also made a share of our happiness to depend upon bodily exercise.

Now, it is by the aid of the power of life, that we are enabled to make the necessary exertion to procure and prepare food for our subsistence, materials to cover our bodies for comfort and decency, and do whatever else may be necessary for our health and happiness. These are called muscular motions or actions.

*Hence, the impropriety of depriving the body of any portion of its blood.

There are also internal actions carried on by the vital organs, which are dependent upon the living power for their continuance; such as respiration; the circulation of the blood and other fluids; the digestive process; the glandular secretions, &c. It must, we think, now be evident, that, inasmuch as the living power is not self-existent, it must waste, and become deficient, by the constant demand upon it to sustain both bodily or muscular, and internal, organic, or vital exertions. And any increased excitement of the vital organs, or of muscular motion, exhausts still more rapidly, the living power, and proportionally reduces the vital force.

The living power may also be wasted, impaired, or annihilated, by other means than its own exertions. Any thing which has an enervating influence upon the system produces its effect either by using this power in excess, or by producing such an effect upon the whole, or some part of the living machinery, as to prevent it from performing its proper functions. The use of ardent spirits, stimulating the heart and arteries in excess, without adding any thing to the living power, as food, &c. does, may be considered as using the living power in excess, and, at the same time, impairing the tone of the organs, whereby they are prevented from performing their office.

Eating too much; sleeping too much; neglect of proper exercise; the excessive indulgence of sensual pleasures; all produce an enervating effect upon the system, by wasting the living power, or by preventing its accumulation, and ought therefore, to be shunned as dangerous to health and life.

The passions, and particularly those termed the depressing ones, and mental exertions, indulged in to excess, all waste or wear out the power of life, and shorten existence.

Finally, when, by continual use, the tone of the organs becomes so much impaired as to be incapable of performing their functions; that is, incapable of manufacturing food, drink, and air, in such a way as to derive the living power from them; and after these materials have imparted all their stimulant qualities to the system, to remove them from it; we say, when the organs thus fail, life then ceases, and death closes the scene!

SECTION VI.

OF THE WASTE OF THE SUBSTANCE OF THE ORGANS.

We have heretofore compared man to a machine, which by the continual application of a forcing power, is kept in motion: and we think the comparison a good one. Both the animal and the inanimate machine, wear out by continual use—both get out of order, and need repair—both need the constant application of the moving power, to keep them in motion, and, as a necessary consequence, both ultimately go to decay.

But there is one very striking difference between the animal machine, and any other with which it could be compared. The human machine is so constituted as to remove, by the operations of its own organs, whatever becomes worn out by the attrition or friction of its parts, thus keeping it cleansed and purified; and, at the same time, by another action, supplying from the proper sources, the very waste or loss occasioned by the removal of the worn-out, useless matter.

However imperceptible the waste of the organs from friction may be, it must nevertheless be the fact. Friction will wear any material substance with which we are acquainted; even the continual dropping of water, it is said, will wear a stone.

SECTION VII.

OF THE WASTE OF THE SUBSTANCE OF THE ORGANS, BY THE EXCRETORIES.

In addition to the wasting of the organs, by continual friction, they are continually losing something, by what is termed the excretories; by which means it is, that the bulk of the body is lessened in the progress of disease. The matter worn out by friction, is also, by the same means, removed from the system. The excretions are—

1. By Cutaneous Transpiration.

Perspirable matter, or sweat, is the product of cutaneous transpiration. The separation of the perspirable matter from the blood, in suitable quantity, is a process of immense importance to health.

The nutricious and stimulant parts of food, drink, and air, being concentrated in the blood, are immediately dispersed through the system, and deposited, in suitable portions, in every organ. Even the bones, hard, and impenetrable as they appear to be to any fluid substance, receive a portion of the nutricious matter contained in the blood. This deposit, after a time, ceases to answer the purpose necessary to sustain life, and it must be removed to make place for more of the same kind or nature. It is commonly supposed that the matter thus become useless, is taken up by absorbing vessels and again thrown into the blood, in which it is conveyed to the surface of the body, and there thrown upon the skin, in the form of sweat, or insensible perspiration.

2. By Pulmonary Transpiration.

The vapor exhaled from the lungs in breathing, is the result of pulmonary transpiration.

This vapor is very visible in a cold morning; and appears to be analogous to the perspirable fluid thrown upon the skin. It is thrown upon the surfaces of the air cells in the lungs, whence it

passes out during the expulsion of the air from the lungs in the process of breathing, and removes the same kind of matter from the system that is carried off by perspiration.

3. By Urine.

The urine also carries off from the system, matter which has become useless, such as water, salts, and earths. There is no doubt that by this, as well as by perspiration, the organs are wasted, or parts of them removed, again to be replaced by a fresh supply of nutricious matter. The urine is separated from the blood, in the kidneys.

SECTION VIII.

OF THE MEANS OF SUPPLYING THE WASTE OF THE POWER OF LIFE.

We have previously anticipated the sources whence the power of life is drawn; but shall now enter more minutely into the subject.

We shall first take notice of food and drink, as it would seem that these afforded both nourishment and stimulus, to the system. Food is taken into the stomach, where it undergoes a partial digestion, when it passes into the duodenum, where the process is completed. The food has now become prepared to yield to the lacteals, its nutricious and stimulant particles, to be poured into the blood. There also appears to be a stimulus imparted to the system immediately on the reception of the food into the stomach, which any person may be sensible of, by observing his feelings, after a meal, which was preceded by long fasting. He will instantly be sensible of an increase of strength and vigor.

When the digested food or chyle, has become incorporated with the blood, it is prepared to impart all its stimulant power to the system, and thus assist in replenishing the waste of vital power, of which we have just spoken. Here. in the blood, (or properly speaking, the digested food and drink form the blood,) the nutrient and stimulant matter is carried and applied to every, even the most insignificant, part of the system, imparting strength and life to the whole man.

From the air, it would seem that we derived a more powerful, and a more constantly necessary stimulus, than from food and drink. We can bear the deprivation of air but for a very limited period; of food and drink much longer.

It remains, however, to the present moment, a subject of dispute, whether the air *imparts* something to the blood, or *abstracts* something from it—whether it imparts a stimulus, or abstracts a sedative.

The venous blood, as it is called, or that which is returned by the veins, from all parts of the system, to the heart, previous to its

entrance into the lungs, is deprived of those qualities which fit it for sustaining the power of life; or containing something which unfit it for those purposes. We shall assume it for granted, that it has, in its passage through the system, imparted its stimulant powers to the organs, and returns to the lungs to obtain a new supply from the air, because we think this the most probable.

In its way to the heart, the blood receives a quantity of the chyle from the thoracic duct, which, as yet remains unassimilated or unconverted to the nature of the vital fluid, or of the system which it is intended to support. In its passage through the heart and pulmonary artery, the blood becomes intimately blended with the chyle, and enters the lungs of a deep or black purple color.—Here it undergoes a very important change; without which life, in a very limited period, must become extinct.

How this change in the qualities of the blood takes place, or is effected, has not been satisfactorily ascertained or accounted for. It is known to enter the lungs of a dark purple or modena hue, and "we find it return," says Dr. Good, "spirited with newness of life, perfect in its elaboration, more readily disposed to coagulate, and the dead purple hue transformed into a bright scarlet. What," continues the same author, "has the blood hereby lost? How has this wonderful change been accomplished?"

We hope to be excused if, upon this most important function of the living machine, we indulge a little in the scientific speculations of the day; although we have no hope of settling the question upon any permanent basis. Dr. Good remarks, having reference to the queries just quoted, "These are questions which have occupied the attention of physiologists in almost all ages, and were as eagerly studied in the Greek schools as in our own day. To the present hour, however, they have descended in a mantle of *Cimmerian* darkness; and though the researches of a more accurate chemistry have disclosed volumes of facts heretofore unknown, and the ingenuity of theorists have laid hold of them, and applied them to an explanation of this curious subject in a great variety of hypothesis, I am afraid we are still almost as much at sea as ever; and that there is no inquiry in the whole range of physiology, in a more unsatisfactory state, than that concerning the ventilation of the blood in the lungs."*

The most probable hypothesis upon this bewildering subject is, that the blood during its passage from the extreme branches of the pulmonary arteries to the corresponding branches of the pulmonary veins, in some manner, comes in contact with the air inhaled into the numerous air-cells of the lungs, the walls of which are every where invested with those vessels, forming a beautiful net-work. This contact of the blood and air, produces a mutual change in the

*Good's Study of Medicine.—Class Pneumatica: Physiological Proem.

properties of both; the blood imbibing the vital qualities from the (supposed to be) *oxygen* gas; the air abstracting the useless and morbid qualities from the blood, supposed to be *carbon;* of which common charcoal is a specimen.

The carbon is supposed to give to the venous blood its dark purple color; and its separation from it, to restore it to the scarlet hue of the arterial blood. But the theories which have been started respecting the change of color which the blood undergoes in its transformation from venous to arterial blood, and how, in its passage through the system, the venous blood acquires its dark hue, are, perhaps, as various and unsatisfactory, as those upon any other part of the process of respiration.

It would seem, however, from every view which we have taken of the subject, that the inhaled air actually imparts a stimulant power to the blood, "the unremitted motion" of which is indispensably necessary to "sustain life from the first moments of conception" till the last moments of vital existence." It would also seem that respiration had a direct influence upon the circulation of the purple flood; the quickness of respiration and the pulsation, always seeming to bear a relative proportion to each other. One is never accellerated without the other; and both may be increased at pleasure, by active exercise, as in running, leaping, &c.

We are still further confirmed in the opinion, that the blood derives a stimulant power from the air, by the effects produced upon the system in breathing the air of a close room several times over, by which means its vital or stimulant qualities become deficient or totally exhausted. Hence, it often happens in close rooms, which are much crowded, that some become weak, some sicken, and others faint. And too much confinement in this way, would eventually produce death, as it did in the case of the English prisoners confined in the Black Hole, at Calcutta.

But we have, as we think, still stronger evidence that something is actually imparted to the blood during the process of respiration, in the fact, that combustion also destroys or consumes the vital properties of the air. It is well known that respiration and combustion, both consume the oxygen of the atmosphere; and neither of those processes can be performed without its presence, in some proportion or other. Pure oxygen gas, although combustion goes on in it with increased splendor and brilliancy, and by it the vital powers are momentarily excited to greater vivacity and vigor, is nevertheless, unfit for the purposes of respiration, and support of animal life. This highly stimulating gas, like rich food, requires with it, a portion of some inert material.

Atmospheric air, being the substance employed in respiration, presents the most suitable and healthy proportion of oxygen, ready formed, by the hand of nature, for our use. It consists of about 21 parts, by measure, of oxygen, and 79 of nitrogen, with slight

traces of carbonic acid gas; which last, however, is not regarded as a constituent part of the atmosphere, but as merely adventitious or accidental. And these proportions of oxygen and nitrogen are found to be the same in all seasons and climates. and at all elevations at which it has been tested; and has continued, without any alteration, since the composition of the atmosphere was first discovered.

But waving all theoretical reasoning, we have all the facts necessary to our present purpose, which is to show that respiration is a principal means of supplying the power of life. We know that the blood, in making a complete revolution through the system, passes through the lungs, and that there it undergoes an important—an indispensable change. We also know, that without this change, life must, in a very limited period, cease its existence; and we also know, that this change is produced by respiration—by the air drawn into the lungs during the process of breathing. These facts are certainly sufficient to establish the proposition, that the power of life is, in part, supplied from the air we breathe. And upon this source we are continually dependent, day and night, asleep or awake, during the whole period of our existence.

Hence, too, we may learn the vast importance of breathing a a pure air, and why an impure atmosphere proves so destructive to health. Foul air contaminates the blood and other fluids, because it does not afford the necessary supply of vital power to the blood, nor remove the carbon, or whatever other useless extraneous matter which it may have become charged with during its revolution through the system.

We now think that sufficient evidence has been furnished to establish our proposition, that the power of life is concentrated in all its force in the blood. Into this fluid, the nutrient and stimulant parts of our food are poured through the thoracic duct; and into it is also tranfused the vital power derived from the air, and by it is borne to every part of the living machine. Or rather, perhaps, we might say, that the nutrient parts of our food, combined with the oxygen of the atmosphere, is what composes the blood, from which is drawn the power that moves the different organs of the human machine.

We feel unwilling to leave this subject, without expressing our confidence, that it has been clearly shown that "Life is a forced state; that the tendency of animals every moment is to dissolution; that they are kept from it, [not by any powers in themselves, but] by foreign powers;" that those powers are drawn from food, drink, and air; the last of which is more constantly and imperiously necessary than either of the others; and is, therefore, to be regarded as the most essential and important "foreign power" used in *forcing* that state which is termed life.

SECTION IX.

OF THE MEANS OF SUPPLYING THE WASTE OF THE SUBSTANCE OF THE ORGANS.

From infancy to mature age, there is a progressive increase of bulk in the organs, and a consequent growth of the body. During this stage or period of existence, a greater amount of matter is deposited in the organs from the blood, than is taken up by the absorbents, and romoved by the exhalents out of the system. It will be recollected, that every thing going into the body, for its nourishment and growth, passes into the blood, from which source it is supplied to all parts of the living economy. Whilst progressing from infancy to manhood, the blood-vessels deposit more than the absorbents remove, and hence an increase of bulk.

But even during this period, as well as through life, a part of what is taken into the body, is worn out and removed from the system. If the loss thus sustained be not supplied, as in case of sickness, or abstinence from food, the body shrinks and becomes emaciated. The waste which thus continually takes place in the the system, can only be supplied from such articles of food and drink as can be assimilated or converted into the same substance and nature with the parts from which the waste takes place.—Whilst in a state of health, the organs possess the power of manufacturing our aliment, and converting it into the proper substance for supplying both the growth and waste of the body.

It is supposed, that the constant change which is taking place in the body, entirely renews it in some certain period; that is, that what now composes our bodies will, in the course of time, be entirely removed, and new matter fill its place. This is certainly, to some extent, the case; but that the whole entire body is renewed, admits of much doubt. It is, however a most curious phenomenon, that so many different substances should be forming in the animal system, such as flesh or muscle, ligament, cartilage, bone, &c. and at the same time wasting away to make room for new matter.

The compounding and decompounding the matter or proximate elements of which man is composed is, undoubtedly, to some certain extent, continually going on within us. This process is indispensably necessary to our existence; and essentially constitutes vitality or *life*. It is this that distinguishes animate from inanimate bodies, and preserves animals from putrifaction and decay. It is generally supposed that the *principle of life* is the preserving power of animal matter, because, at the common temperature of the body, putrifaction commences very soon after death. But we know very well, that certain substances will preserve animal or vegetable matter from putriyfying in the dead state; and why may not the living organs manufacture something to act upon the living fibre, in the same or some similar way? Moreover, the organs of the

living machine are continually separating the worn-out, useless matter, from that which is sound and useful, which certainly is an additional means of preventing putrefaction.

In one of our lectures, we advanced the idea that the *effect* produced in the compounding and decompounding the elements of man, was what constituted the living state or condition of the body termed life. Life invariably ceases whenever the necessary supply of food, drink, or air, is, for a certain time interrupted or withdrawn; or whenever the organs concerned in preparing those substances to enter into a proper state of combination, become incapable of performing their office.

This view of what constitutes life, does away the necessity of supposing a *vital principle*, *principle of life*, *living principle*, and many other terms which have been used to express the hitherto unknown *something*, which produces the various phenomena of animal existence. I say the necessity of supposing a vital principle, because, physiologists have not with all their research, been able, in any other way, or upon any known principle, or mode of action, to account for the phenomena of life. This mode of reasoning accounts for nothing, explains nothing. It rather plunges the subject into still greater darkness and difficulty.

If the human system was a mere simple or primary substance, instead of being a compound substance, it must then necessarily follow, that, in order to produce the phenomena of life, a *principle* of *life* must be inherent in it. But such a fact as this, even if it existed, would be a most singular anomoly—an unheard of circumstance in the works of nature. It is of nature's works we write; and it is to her laws we refer every change and every phenomenon of the living system, and of the whole material world. We wish, however, not to be misunderstood in assigning these things to nature's laws, we do it with all due and necessary deference to the Great First Cause, who created the whole, and endowed matter with certain fixed principles which we term its laws.

The fact must certainly be familiar, at least to the philosopher and chemist, that a *simple* substance contains but one simple principle; and this, so long as it remains insulated from other matter, is inert and incapable of producing phenomena of any kind whatever. It is only by combinations of different matter, each being invested with its peculiar principle, that the operations of nature are carried on; and the laws of nature are those rules which produce or govern the effects thus produced. And we do not see why animal bodies should any more be exempt from those laws than other matter. They are a part of the material world—formed from the great mass of elementary matter; have a progressive growth; a mature age; a progressive decay. Death and decomposition close the scene, when they return to the common mass again.

SECTION X.

OF THE ALVINE DISCHARGES.

The term alvine is applied to the discharges from the intestines, by stool. They consist of the alimentary matter which the lacteals cannot take up, together with a mixture of bile, mucous, and excrementitious matter poured into the intestines from the exhaling branches of the arteries which terminate at the internal surface of the intestines.

The regular discharge of the fæces or stools, like the exact performance of every other living function, is very important to health. Its regularity depends upon what is termed the peristaltic motion of the intestines. If this motion is accelerated, the digested food passes too soon through the intestines, and does not yield the whole of its nutrient and stimulant powers to the lacteals; hence debility and emaciation of the body. It is also sometimes the case, that the intestinal exhalents, of which we just spoke, pour into the intestines a superabundance of fluid, producing liquid stools, which also has a very debilitating influence on the body. Liquid stools are also sometimes produced by acrid or irritating substances introduced into them, as drastic purges, &c., of which, debility is a certain consequence; and which, therefore, ought to be avoided as pernicious.

The peristaltic motion may also become too slow, and give rise to what is termed costiveness; producing, if long continued, a train of formidable symptoms, difficult oftentimes to remove, especially when of long standing. Costiveness, however, is commonly regarded as a symptomatic affection, rather than as a primary disease. It is an almost constant and never-failing attendant upon dispepsia or indigestion. But whether it be a primary or symptomatic complaint, its removal carries with it a train of other disagreeable symptoms which, if suffered to remain, are distressing to the patient, and highly injurious to health.

CHAPTER II.

OF ANIMAL HEAT.

Although we have placed the terms animal heat, at the head of this chapter, we do not wish it understood that we think the heat of an animal is in any respect different from the heat of any other body. We use the term, in common with other writers, merely to express the heat of animals, without designing to distinguish animal, from any other heat. Its generation in the system is of vast importance to health, over which it exercises a most controlling influence.—We have, therefore, devoted a chapter to its consideration.

SECTION I.

OF THE PRODUCTION OF ANIMAL HEAT.

The means by which heat is generated in the human system, is so obscure that physiology has not, hitherto, developed, with satisfactory certainty, the seat nor the mode of its production. And whether we shall be able to suggest any thing more conclusive, remains yet to be tested.

The most popular and best defined theories fix the production of heat in the lungs: but the manner in which it is there produced remains very unsettled. Some again attribute its production to the *alternate changes* of venous to arterial, and of arterial to venous blood; whilst others seem disposed to ascribe it altogether to the influence of the nervous system.

For the secretion or formation of every other substance necessary to promote the operations of the living machine, an organ has been asssigned; but for the production of heat, a substance indispensably necessary in the animal system, no organ has yet been detected which, from the office it is known to perform, could be confidently suspected to produce animal heat. Indeed, from the very nature of this substance, we should not expect, *a priora*, that any one organ in the system could be the source of its production. If it were the case that animal heat was generated wholly in the lungs, or any other central organ, the source of its origin must experience a high degree of heat, whilst more distant parts would be comparatively cold. But it is maintained that the vital parts of the body are very little if any warmer than other parts are; and it is in these that we should expect to find the source of heat; as, indeed, it is commonly attributed to the lungs.

Heat is an inconfinable substance, and unlike all the fluids, which can be formed in one part, and conveyed in tubes to every other part, it must be formed in the place where its presence is required. If it were generated in the lungs, it must be transmitted by the blood to the extremities; but ere this could be done, the heat would be dissipated, because the walls of the arteries could not restrain its radiation.

We have hinted that animal heat is not generated in any particular organ, but universally throughout the system. But how, or upon what principle? This is a question which the utmost researches of chemistry and philosophy has never yet been able to answer. We know, however, that friction produces heat, although we know not upon what principle; and amidst all the actions taking place in the human system, and particularly in the circulation of the blood through the minute vessels which seem almost to compose the very fibres of the flesh, there must be a vast amount of friction, and of course, a production of heat.

Should any be disposed to doubt the probability that the friction of a fluid substance can produce heat, they may remember that the

blood is an *animal* fluid, very different in its composition, as well as physical and chemical properties from any other.* Like the solids of the body, the blood is susceptable of the influence of the living power, by which it is kept in motion. Its principal constituents are water, oil, albumen, (a substance similar to the white of an egg,) carbon, salt, &c. Indeed, the blood is the matter of which the solids of the body are composed, in a state of fluidity. In becoming solid the water appears to be separated and goes off by the lungs and skin, carrying with it those parts of the solids which are worn out, and ready to pass away, to make room for a new supply.

We may also remark, that every thing which accelerates the motion of the blood, which, of course, increases the amount of friction, increases the heat of the body; and upon what known principle or mode of action, could it be so rationally accounted for as upon the action of friction. All those substances, (food, drink, air,) from which the power of life is drawn, the application of which is constantly necessary, supply the means of generating heat in the healthy state. It then follows, as an unavoidable result, that whenever these substances are withdrawn, or the power derived from them is weakened or exhausted, the capacity of the system to produce heat must also be proportionably weakened or destroyed. These views are illustrated by the fact, that a person, after a meal, will resist the effects of cold much better than while fasting. And a person laboring under debility or disease without fever, although he may not be sensible of any reduction of animal heat, is, notwithstanding, aware of his inability to resist the effects of the external cold. Hence, it is that the more strong and vigorous a man is, the less he is affected by cold; and the more weak, feeble, or debilitated, the more he is influenced by it.

It would seem, therefore, from all that has been said, that heat, to be equally diffused throughout the body, must be generated equally in every part. And what known operation of the animal machine appears so likely to produce it as the friction of the blood passing through its vessels; and particularly its passage through those almost imperceptible ones which terminate the arteries and commence the veins? As we have previously observed, no organ has been detected in the system, whose office could rationally be assigned to be the production of heat; and as from the inconfinable nature of it, it could not, like fluids, be conveyed from any central or single organ, to the remote parts; and as friction seems to be the only known mode of producing heat, which operates uniformly over the whole system, we humbly challenge physiology for an acceptance of our theory; at least until something better than any of the former ones is offered to the world.

*See JOHN HUNTER's celebrated Treatise on the Blood, &c.

SECTION II.

OF THE USE OF ANIMAL HEAT.

Animals, like all other organized living matter, require a certain portion of caloric or heat, to promote their growth, and sustain life. And some, both of ancient and modern times, have supposed from the important influence which heat exercises over the animal economy, that it was the principle of life. This, indeed, is the theory of Dr. Thomson, which is becoming so widely disseminated in the United States. But the incorrectness of this has been elsewhere shown,* and will be further noticed in the progress of this work, which will supersede the necessity of dwelling much upon it here.

The use of animal heat, appears to be to act as a stimulus to the organs, and more especially, as a solvent of the fluids. A due quantity of it attenuates the juices, and softens all the vessels, by which means the circulation is kept up with ease and regularity. On the contrary, if a sufficiency of animal heat is not generated, the fluids become thick and viscid; the vessels become stiff and unyielding; the circulation becomes languid and feeble; the process of nutrition is interrupted; the removal of worn-out matter from the system is checked: and a state of disease ensues. The same result will also follow, if the heat, by any means is reduced or carried off too rapidly from the system; which is the case in being exposed to, or what is commonly termed catching, cold.

Too great a reduction of animal heat, also impairs the influence of the nerves, and prevents the prompt communication of external impressions to the brain, and of the power of motion to the organs. Hence, when the heat, by any means becomes reduced, or its production checked, the power of life is prevented from exercising its proper influence over the living machine, in consequence of the fluids becoming viscid, and the organs disqualified from being acted upon.

SECTION III.

OF THE WASTE OF HEAT.

As heat is constantly generating in the human system, it must also be carried off or out from it; and, indeed, for the very reason that it is continually passing off, it must be constantly generated.

Animal heat is reduced in different ways, and by various causes:

1. By the coldness of the atmosphere.

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*See Address and Lecture delivered before the Botanic Society, Columbus, Ohio.

It is an established fact, that heat pervades all bodies, in contact, alike. This quality is one of its peculiar characteristics; it being inconfinable within any limits or by any substance. Caloric, or the matter of heat, is so extremely subtil, that it penetrates and passes through all substances; and through those which are solid, it passes with greater celerity than through those which are more porous. If, for instance, we take a hollow metal ball, and a wooden box of the same size, and thickness of the walls, and carry them into a warm room, and when the air they contain becomes of the same temperature of the room, stop them air tight, and carry them into the cold, the heat will leave the air and pass through the walls which surround them, until the heat of the contained air becomes of the same temperature with that outside the box and ball. It will also be found that the heat in the metal ball, will be much sooner exhausted than that in the wooden box. Hence the propriety of calling heat an inconfinable body or substance; and hence too we may see that it passes more rapidly through solid than soft substances.

From the facts adduced, it must follow, that no body or substance, whatever, either animate or inanimate, can long retain a temperature above the surrounding atmosphere, or any other substance which it may be in contact with, unless it is under the influence of some power that will generate heat. A rod of iron, for instance, heated red hot, and plunged into cold water, soon imparts its heat to the water, and both become of equal temperature; or if it be laid in the open air, it is soon reduced to the temperature of the atmosphere.

Just so with man, whose temperature is above the surrounding air; he is constantly losing heat, and at the same time as constantly generating more to supply the waste. The quantity of heat lost in this way, is always in proportion to the coldness of the atmosphere, or medium which surrounds us, and the particular situation of the body, whether weak or healthy; exhausted or vigorous; and also upon the state of the skin, whether tense or relaxed, or dry or moist. The knowledge of these facts enables us to comprehend how a person exposed to a current of cold air, or the action of any other cold substance, either externally or internally applied, loses his heat, and becomes the subject of disease.

2. By the perspiration, and its evaporation from the surface.

Every fluid contains a portion of what is termed *caloric* of fluidity; that is, a portion of the matter of heat combined with the fluid, sufficient to give it fluidity. Hence the separation of fluids from the body carries off the heat, as well the caloric of fluidity as the heat which is necessary to raise the fluids to the temperature of the body.

Perspiration is ordinarily thrown upon the surface in the form of an impalpable vapor, termed insensible perspiration. This matter

is constantly evaporating from the skin, which carries with it an additional quantity of caloric or heat, which is increased by exposure of the body to cold air. In such climates and situations as have temperature above the human system, this process of removing heat from the body is indispensable to existence. Dr. FRANKLIN has the honor of first suggesting the principle upon which this cooling process depends.

He illustrated this principle by comparing the human system to a kind of vessel used in some countries, for cooling water. This vessel is perforated all over with a great number of very small holes, through which the water very slowly percolates, and by continual evaporation from the surface of the vessel, carries off the warmth from it and the water, which is thus made cool.

In some hot countries where a scarcity of water prevails, water is carried on horses or camels, in bags, exposed to the vertical rays of a burning sun; which instead of warming the water, as might naturally be expected, has a contrary effect, making it cooler than it otherwise would be. These bags being made of leather, are sufficiently porous to admit the water slowly to ooze through them by thousands of imperceptable pores. The heat of the sun causes a constant and rapid evaporation from the surface of the bags, which carries off the heat, and thus reduces the temperature of the water.

It is also a well known fact, that water, when heated to the boiling point, cannot, by the fiercest fire, or most violent boiling, be made any hotter. The more intense the heat, the more rapid is the evaporation; and the vapor carries off the additional heat as fast as infused into the water; thus preventing the temperature from increasing by the most vehement fire.

If cold water could be made to evaporate, without the application of heat, with the rapidity that it does in violent boiling, it would in a very few moments become converted into ice. To satisfy ourselves of this, we only need to imagine the vast quantity of heat which must pass through the water in a state of vehement boiling. In India, according to some writer, ice is actually formed by producing artificial cold, in the way of which we have been speaking. The means employed to produce the necessary evaporation, we do not now recollect.

3. Though not strictly in accordance with our design, we will advert to another cause which, if it do not waste the heat, checks its production.

Excitements of every kind are followed by a proportional langor. Thus long continued or violent exertions, waste the power of life, and must always be succeeded by a langor proportioned to the waste. The organs now cease to perform their functions with their wonted vigor; the circulation becomes slow and languid, and the generation of heat declines; and under such circumstances as these,

the liability to suffer from exposure to cold, or to cold and dampness conjoined, is more than doubly increased. Hence persons who have labored to exhaustion, ought not to sleep in cold and damp situations.

The exhaustion of the living power produced by exercise during the day, creates the necessity of rest, during the night. During sleep, the functions are performed in a slow and feeble manner; animal heat is more slowly evolved; whilst the power of life is accumulated, and the organs recover their tone, ready to meet the exigencies of the coming day. That the functions of the system go on more slowly during our sleeping, than in our waking hours, is easily demonstrable; and the circumstance of our requiring more covering when asleep, than when awake, very forcibly corroborates our proposition respecting the slow evolution of heat.

CHAPTER III.

OF THE PERSPIRATION.

The perspiratory excretion holds a pre-eminent influence over the integrity of the living system. Its retention in the system, often produces serious derangement of the animal functions; and suffers more or less extensive variations in every disease.

Perspiration is distinguished into sensible and insensible; but as the difference in quantity is all that makes the distinction, we shall take no further notice of it here.

SECTION I.

OF THE SOURCE OF PERSPIRATION.

The perspirable matter or sweat, is secreted from the blood, in which it has its origin. Its constituent parts appear to be water, animal gas, azotic or nitrogen gas, the subcutaneous oil, and serum of the blood. The organs which separate the perspirable fluid from the blood, are composed of the extremities of the *cutaneous* arteries. All our food becomes a fluid, in the process of digestion, and the nutricious part enters into the blood, from which it is deposited in the solid parts. After it has fulfiled its period of usefulness there, as it would seem, it again enters into the blood, to make place for a new supply of fresh materials. During the rounds of its circulation, it is presented to the proper organs, which separate it from the blood and remove it out of the system.

SECTION II.

OF THE USE OF PERSPIRATION.

The process of perspiration is one of immense importance to the living machine. Its principal uses are:—

1. To moisten the external surface of the body. Every part of the system, the internal surfaces, and even the very substance of the organs themselves, and the external skin, require a suitable degree of moisture to lubricate, soften, and qualify them for the performance of their functions. Too great a dryness of the skin, injures the *epidermis* or external scarf-skin, and the terminating *papillæ* or ends of the nerves, which impairs sensibility, and ultimately injures the *cutis vera* or true skin.

2. It removes from the system the worn-out useless materials of which it is composed, and thus purifies and cleanses the living machine; relieving it from a mass of morbid putrefactive matter, which, if retained in the system, would be an interruption to the play of its organs; and a source of irritation to their fibres, an unfailing cause of disease. It purifies the blood, and all other fluids, keeping them in that state which is most conducive to sound health; and may be justly considered as the natural outlet of any surplus matter contained in the blood. Hence the propriety, in all cases where blood letting has heretofore been considered necessary to reduce the quantity of this fluid, of promoting the secretion of the sweat from the blood.

3. Another very important function performed by the perspiratory organs, is the removal of poisonous and other irritating extraneous matter from the body. We have heretofore pointed out the course which every thing entering the body took in its passage through the system. Whatever enters the stomach, passes into the intestines, and thence through the lacteals and thoracic duct into the blood; whilst in the lungs, every substance passes directly into the vital fluid. Hence solid and liquid poisons commonly enter the body by the stomach; and gaseous ones by the lungs. How, when poisons have entered the system, does nature rid herself of her internal foe? If the poison be a liquid or solid substance, taken into the stomach, an emetic, immediately administered, may throw it off, before any part of it is absorbed by the absorbent action of the stomach, termed by Magendie, absorption, and thus save the system from any further ill consequences. But if it has entered into the circulation, before an emetic can be administered, or if it be a poisonous gas applied to the lungs, it must then be thrown out of the system through the outlets or emunctories of the blood, which are the perspiratory organs; that is, the poison must pass off with the perspiration. Without this admirable provision, to cleanse, to purify, to remove extraneous matter, the organs must become incommoded or stopped in their action, something perhaps as a mill wheel with back water; or they might be destroyed like the wheels of a watch by *aqua fortis*.

SECTION III.

OF THE EFFECTS OF CHECKED PERSPIRATION.

We have already measurably anticipated the effects of any check given to the perspiratory function; but still, in accordance with our original design, we shall assign a short section to its consideration.

Any check given to the ejection of the perspirable fluid, causes a retention in the system of matter which must have a tendency to run into putrefaction, and thus vitiate the vital fluids, which destroys their stimulant qualities, and contaminate all the secretions so necessary for keeping up the vital actions of the system.—Hence the blood may become thin and watery, or thick, gross, and black, &c.

It is asserted by well informed respectable writers, that the greatest proportion of diseases to which we are liable, originate from checked perspiration. And hence the propriety of washing, bathing, frictions, &c. to soften and relax the skin, in which are situated the organs which separate this perspiring fluid from the blood.

CHAPTER IV.

OF HEALTH.

We now come to treat upon a subject from which, aside from morality and religion—and those joys which are purely intellectual, all the pleasures of existence flow. Without health, the world is little better than a dreary waste—a gloomy solitude, a tasteless scene, though we might be surrounded by the most splendid monuments of art, the most cheerful friends, and a profusion of every thing calculated to give a relish to existence. Even the luxurious beauties of nature fade in the eye of the sick; and the ordinary joys of life cease to have their accustomed grateful influence. Time, which in our healthful moments passes away, almost unheeded and unknown, in sickness seems to wear out existence with its lengthened hours.

SECTION I.

OF WHAT CONSTITUTES HEALTH.

Health consists in an easy, agreeable, harmonious action of all the vessels, and an exact performance of all the functions, in the human system. Whilst this state of the system continues, the appetite craves food, digestion is regular and easy; the blood is supplied with a suitable portion of chyle, which nourishes, supports, strengthens, and invigorates the body. The secreting organs being also dependent upon the quality of the blood, are healthful and

abundant; all the excretions take place with suitable regularity, thus removing all the worn-out, useless, and, if retained in the system, injurious matter; by which health, strength, vivacity, and vigor are promoted and preserved.

SECTION II.

OF THE POWER WHICH SUPPORTS OR PRESERVES HEALTH.

The reader, if he has carefully perused the preceding chapters, and noticed our leading fundamental principles, will have anticipated our views on this subject. It must be evident that the preserving power of health can be nothing else than the power of life.

Whilst the materials (air, food, drink) are supplied to the human machine, and the different organs are not impaired by any kind of violence or disease, the living power exerts a proper force upon the system, and thereby keeps up a suitable healthy action. It is, therefore, a sufficient quantity of the living power of life applied to, and stimulating the organs of the living machine, which supports and preserves health.

CHAPTER V.

OF DISEASE.

Hitherto we have treated of man, and considered his functions, and some of the relations of his functions, only in a state of health.

We are now to treat of a state of the system, different from this, and which it is the grand object and aim of the science of medicine to remove. This state of the system is termed its pathological or diseased state.

Disease, when it pervades all the organs of the system, as in fever, &c. is termed general; and when only one, or a part of the organs are affected, it is termed local or partial. Both general and local disease is termed primary or *idiopathic*, when it arises independently of any other affection; and sympathetic, when in consequence of some other complaint. When peculiar to a certain class of persons, or a certain country, diseases are said to be *endemic;* and when the same disease attacks a great number of persons at the same time, or during the same season, in a town, city, district, or country, it is said to be *epidemic.*

SECTION I.

OF THE VARIOUS THEORIES OF DISEASE.

Since the earliest ages of medicine, new theories have been progressively succeeding each other in the march of medical science;

but without materially improving the knowledge, or the practice, of medicine. Some new truths, however, have probably resulted from each of them, which, like "beacons on the solitudes of time," point the traveller to the place of their origin.

In tracing the history of medicine, from the infancy of its existence, we find arising a succession of men, whose splendid talents and glittering theories, eclipsed the glory of every thing which had preceded them. Indeed, the history of this science, is but the history of theories, whose existence, durability, and fame, if we exempt Dr. Brown's, depended more upon the character of their authors, than upon any intrinsic merit in themselves. But it does not comport with our present design, to trace all the various theories which have been offered to the world. Cullen, Brown, and Rush, stand pre-eminent, as medical theorists, amongst those who have lived near our own time; and Dr. Thomson, amongst our cotemporaries.

But it has been, and well it may be, queried, what authority there is in theories. They have been made not only the sport of speculative writers, but the stepping-stone of power for medical aspirants. "Theories are but the butterflies of the day; they buz for a while, and then expire; each, however, in its turn, promising itself immortality." It is humiliating to the proud dignity of man, and to the grandeur of his lofty mind, to find theorists, as Dr. Robinson observes, "arising, like Roman gladiators, on the arena of combat, to cut each other down;" or "to show that a false pathology, or a corrupt practice, had pervaded the system from the origin of the science."

Dr. Cullen says, the *autocratia* (healing power of nature) which, in some way or other, was admitted by every sect, had *corrupted* the practice of *all physicians*, from Hippocrates to Stahl. And Dr. Brown, in the preface to his Elements of Medicine, remarks that "fifteen years of his life, devoted to the study, passed away without the acquisition of any advantage, and without that which of all things is most agreeable to the mind, the light of truth; and so great, so precious, a portion of the fading and short-lived age of man was lost. This led him," he says, "with many eminent men, and even with the vulgar, to deplore the healing art as altogether *uncertain* and *incomprehensible*. It was only betwixt the fifteenth and twentieth year of his studies, that, like a traveller in an unknown country, wandering in the shades of night, after losing every trace of his road, a very obscure gleam of light, like that of the first break of day, dawned upon him." And can the reader believe that the dawn of true medical science, first burst through the dark bewildering gloom with which it was surrounded, and illuminated the philosophical mind of Dr. John Brown? It certainly did. But many of his medicines acted in opposition to the principles of his theory; which, together with the fact, that his opposers and persecutors, held the medical chairs at Edinburgh, almost extinguished

this feeble light, and nearly extirpated this infant germ of medical science.

"The great and good Dr. RUSH," speaking of CULLEN's nosology, said that it had led physicians to prescribe for the *names* of disease, instead of their proximate *cause;* and who, we will ask, can comprehend the fatal and terrible consequences of such a strange delusion? And, notwithstanding the simplicity of his own theory, and the beneficial effects which he no doubt anticipated would result from it, Dr. RUSH exclaims, I am insensibly led to make an apology for the *instability* of the theories and *practice* of medicine. Those physicians, continues he, generally become the most eminent, who have the *soonest emancipated themselves from the* TYRANNY *of the schools of physic.*

Examples to this point might be multiplied; but the philanthropic mind sickens in the contemplation of the tremendous consequences resulting from the false theories and corrupt practices which have degraded medical science. and pauses to inquire if it must always be so? Is mankind, through all time, destined to suffer under this iron scourge? Is he never to arrive at first principles in the application of medicine to remove his maladies? The goodness of DEITY responds in the negative to these important interrogatories—the recent discoveries of Dr. THOMSON respond a negative—and the experience of hundreds, nay, of thousands, in the United States, responds a negation to them also.

The theory of Dr. BROWN, from which no doubt, Dr. RUSH framed his, we are disposed to consider as the most rational, consistent, scientific, and systematic, theory, both of the living and the pathological states of the human system, which was then known to the world; and which, notwithstanding the powerful opposition made to it by CULLEN, who was still living, and in the full tide of his glory, and aided by the whole College Faculty of Edinburg, spread, in a few years, throughout England, and the most enlightened parts of the Continents of Europe and America. And it is to our acquaintance with, and partiality for Dr. BROWN's theory of life and of disease, that we owe our first favorable impressions of Dr. THOMSON's; and which we only consider superior to BROWN's, in its *more successful* application to practice. And it is but justice to BROWN and THOMSON, to acknowledge, that their theories form the basis of our physiological views of life, disease, and medicine—subjects so intimately connected in this part of the work, as to make the terms almost synonymous.

The theory of Dr. BROWN refers disease to two causes, viz:—either excess or deficiency of *stimuli.* Hence diseases arising from an excess of stimuli, are said to be caused by an increase of vigor; and those arising from a deficiency of stimuli, are caused by debility, or want of vigor. Those diseases which arise from the first cause, he calls *sthenic;* and from the last, *asthenic;* thus dividing

disease into two classes, and directing his means of cure to produce contrary states of the system.

We disagree with Dr. BROWN in his theory of disease, so far as to believe the distinction into two classes, to be unfounded in fact, and even inconsistent with his own theory of life. For, if we even admit that disease may be caused by an excess of vigor, that cause, the moment diseased actions are produced, must cease to exist; because a vigorous, and a diseased state of the system are incompatible with each other. We perfectly agree with Dr. BROWN in his theory of life, and so far in his theory of disease as the sthenic class is concerned, that is, those depending on debility, but no further.

Dr. RUSH's theory of life is the same with Dr. BROWN's; and his theory of disease varies in nothing important. He, however, considers disease as an *unit;* that is, he makes no divisions of disease, but accounts it a state of *morbid* excitement. This he equalizes on the same principle with BROWN, either by stimulation or depletion, according to the state of the excitement, whether deficient, or in excess. Hence we take the liberty to observe, that RUSH's theory was essentially the theory of BROWN, and the practice of both precisely the same; and whatever credit may be given to Dr. RUSH, for simplifying the theory, it is but justice to ascribe the origin of it to Dr. BROWN.

But the recently propagated theory of Dr. THOMSON, as it regards the PRACTICE of medicine, we consider as coming nigher the truth than any which preceded it; and by the aid of which we have been enabled to perfect the system of Dr. BROWN, and present to the world what. before, it never had, something approaching toward a *correct theory* of disease. And however short Dr. THOMSON's theory or practice may fall of perfection, they have certainly done more, in the present day, to reform the practice of medicine, than any thing else which has preceded them; and we cannot avoid fancying, that they will remain for ages a monument to his memory. He has opened the avenues which lead to the fundamental spring of true medical science, from which now issues a strong and limpid stream, bearing on its bosom a healing balm for most of the maladies of man—the bounteous gift of NATURE'S GOD.

The more the new theory of Dr. THOMSON, *with its improvements*, are studied and understood, the more their beauties will become developed and admired; and the better we shall be enabled to comprehend and explain, many of the hitherto obscure, mysterious and inexplicable facts in medicine, relative to the causes, effects, and cure of disease. The traveller upon a strange road, is continually inquiring his way of those he meets, and if in the right road, each succeeding inquiry confirms his previous information, and encourages him in the vigorous prosecution of his journey.—And hence, the accumulation of scientific medical facts, instead

of leading to an incessant change of practice, as all former theories have done, will tend more and more to confirm a correct theory and a sound practice, by confirming them upon the immutable basis of truth. And although we do not exactly correspond in theoretical opinions with Dr. THOMSON, yet we confidently trust, that the more the true nature of his system is understood, the stronger will be confirmed the *true* and *real* first principles of this modern HIPPOCRATES—this intrepid, persevering medical reformer—this mocker at the forms, the science, the systems, and the glory of the schools of medicine.

At one bold adventurous stroke, he has scattered, like dust in the sun beams, all former theories and practice of medicine; of which, like "the baseless fabric of a vision," there will not, in time, be left "a wreck behind." But Dr. THOMSON, unlike other theorists, first discovered a safe and simple method of removing disease, and then framed a theory to correspond with it; and hence his patients have not suffered, as those of other medical reformers have done, from bending the practice to suit some false theory. For false theories, so many of them as have been introduced into medical science, could never of themselves, do any injury to the sick: the injury has arisen from the attempts of physicians to adapt their practice to some favorite, but false theory. And "how many cruel and premature deaths, how many impaired and debilitated constitutions, have paid for the folly of theories!—follies, which have almost always been fascinating. The study of a system is more easy than the investigation of nature; and in practice it seems to smooth every difficulty."

The reasoning mind, in its investigations of nature, is prone to adopt a systematic course of theorizing. But so often have the finest wrought, and apparently consistent theories of medicine failed in their application to practice, that physicians now affect to discard, in every form, theoretical reasoning as a basis of medical practice. These failures may principally be attributed to two causes, viz—the want of correct data to reason or theorize from, and of medicines which act in unison with theory, and the laws of life. It was principally from this cause, that Dr. BROWN'S theory failed in its application to practice.

The theorist who has some correct data—some certain starting point—some positive and correct principle to guide him, may go on successfully with his investigations; but if he have no certain starting point; no established facts; no correct principles to reason from, and guide him through the dark mazes of uncertainty which he is about to explore, his utmost advancement will only serve, eventually, to make the surrounding gloom the more visible. The discovery of facts, which the most impenetrable darkness cannot prevent from occasionally bursting upon him, instead of serving as waymarks to guide him forward in the path of investigation, continually

admonish him, that he is entering deeper and deeper into a labyrinth; whilst those facts are the only beacons by which he is enabled to wind his way out. But he who is guided and sustained in his progress, by established laws or principles, finds new light bursting upon him at every advance, until he arrives at the full splendor of meridian day. And although so many attempts at systematizing the operations of nature have failed, we, nevertheless, consider this disposition of the human mind to theorize and systematize, as one amongst many other proofs, that it is the only rational method of understanding, and accounting for all, or any part, of the phenomena of animated nature.

We attribute all things to the creative energies of a supremely intelligent Great First-cause, which, as it comprehended all things, must rationally be supposed to have operated on some fixed, immutable principle, or by some certain rule or law; and consequently would have established some perfect and certain rule for the government of the matter which he created, under all its varying circumstances, situations, shapes and forms. And Dr. Thomson, we conceive, has given us a clue which will, if properly studied, lead to a correct knowledge of the laws of animal life. The origin and perfection of a theory in so intricate and important a department as medical science, is a task of too great magnitude to be accomplished during the short lived age of a single man. But Dr. Thomson has done much more, by his discoveries, that any other man of the present day, to reform the abuses of medicine, both in theory and in practice; and by these we have largely profited; the theories of Brown and Rush have been stripped of their ambiguity; and we confidently believe the foundation is laid upon which will be built a superstructure of true medical learning, perfect in all its parts. And we feel constrained, in this place, to lay down as a general rule for investigating the laws and operations of nature, that every fact, circumstance, and principle, should be made to harmonize into a perfect system.

If the facts and principles elicited, cannot be consistently systematized, we consider it an evidence, that we have not a knowledge of all the facts, or of the true principle; or that we are pursuing our investigations from false premises or incorrect data.

Dr. Thomson's theory is briefly this:—That *life* is *heat;* and *cold* is *death;* or, in other words, that heat is the principle of life, which was also a common belief amongst the ancients, and may also be found in some respectable modern works.* He regards the food as the fuel; the stomach as the fire place; and digestion as the process which consumes the fuel, by which means the *fire* is kept up, and the whole body warmed, just as the whole room is warmed by the fuel consumed in the fire place. And the greater

*See Tourtille's Principles of Health.

the quantity of food *well* digested in the stomach, the more heat and nourishment throughout the system. He considers disease as being caused by cold, or by a failure in the necessary supply of heat, which produces obstruction in the system, in which respect he also coincides with the most popular authors. In other words, he compares disease to a *battle* between heat and cold; heat being the principle of life, and cold the principle of death. Consequently, if heat be victorious, health will be restored; but if cold, which is the enemy of life, prevail, death is the certain result. His practice, therefore, was to direct his remedies to produce a contrary state of the system; or, in other language, to assist the heat to overpower the cold.

As we feel no disposition to enter into any controversy in this place, we forbear pointing out the defects of Dr. THOMSON's theory; but shall leave this as well as our own peculiar theory, for the reader to glean from our physiological observations, throughout this part of our work, and to a brief recapitulation which we intend giving at the conclusion.

SECTION II.

OF THE CAUSE OF DISEASE.

OUR theory admits of referring disease to but *one proximate* cause, viz: a diminution of the vital force or power of life.

This power is diminished by a great variety of means, and by very different causes; such as great bodily fatigue or violent exertions; the want of natural rest; severe evacuations; intemperance in drinking; too close application to study; grief, fear, or anxiety; errors in diet; and long fasting. All these circumstances have a tendency to debilitate and depress the living power of the system.

We may also observe that a foul or vitiated atmosphere, which by not affording a sufficient supply of stimulus to the blood, or by yielding something deleterious to it, often causes disease, as in epidemics. The application of cold to the body, appears powerfully to reduce the vital force, and is one of the most common causes of disease. In short, whatever has a tendency to enervate the body, reduces the power of life: by which means are produced any and every complaint to which human nature is subject; varying its effects according to the *predisposition*, habits of life, peculiar employment, or *idiosyncrasy* of the individual.

SECTION III.

OF THE TRUE DEFINITION OF DISEASE.

THE task which we have here imposed upon ourselves, the reader perhaps may think is insipid, visionary, uninteresting, and useless.

We trust however, that if we do not convey any new ideas upon this subject, we shall be able to present old ones, in a different point of view; and perhaps excite some interest in the minds of those who are disposed to investigate the science of medicine; particularly that part of it termed pathology, or the doctrine of disease. This state of the system has furnished a fruitful theme for the mind and the pen of every author who has written upon medicine, since the first origin of the science.

But what is disease? that formidable enemy to the race of man—that many headed monster—that insidious serpentine foe—that fell destroyer, without respect to age, sex, or circumstances, of the human family, which shows itself under so many different appearances and names; and which, under each and all of these different appearances, or transformations, deceives the "very *elect;*" that is, those who have elected *themselves** to be the detectors and destroyers of this deceptive, wily enemy to the health and life of mortal man.

We have said, by inference, that this enemy is not health; but this is not answering the inquiry. Every body knows that *disease* is "*any alteration* from a state of perfect health." And yet, strange as it may appear, this is the only definition hitherto given it in the professed works of science. We are often, it is true, called, in these works, to witness a formidable array of names, causes, symptoms, forms, and effects, of disease; and to trace them through all the various parts, tissues, and organs; from those which terminate in health aided by the simple powers of nature alone, to those which, in defiance of the powers of medicine, terminate in death! But does all this explain to us the real essence, or essential nature, of that monster which, under so many different characters and disguised names, is daily liable to sap the foundation of health and human life?

All agree, however, both learned and unlearned, in conferring upon this insidious foe, under all his different characters, and all his various names, one general appellation, by which all distinguish him in all his different forms and transformations; which general appellation is DISEASE. And if men could fully divest themselves of their prejudices, they would be enabled to contemplate disease, under all its various and, apparently, contradictory modifications, as essentially the same. We learned, when in our youth, from the writings of Dr. BUCHAN, that disease was not one single symptom; but an assemblage of various or different symptoms; and that the

*For this sentiment, we would refer the reader to the laws of every State where the faculty could succeed in procuring their passage, which secures to them the exclusive prerogative of practicing the healing art. It is certainly an impeachment of both the professional and moral characters of the medical faculty, thus to entrench themselves behind the bulwarks of the law, instead of meeting their competitors on the field of open and honorable competition.

same symptoms, in modified forms, usually attended almost all complaints. That the different names to disease, generally originate from some one, or more, of the most prominent symptoms: Thus, when heat, violent motion of the blood, &c. predominate, the disease is called fever; which is again distinguished, by peculiar symptoms, into different kinds of fever; and so of many other complaints. These different symptoms are only to be regarded separately, as the evidence of a more severe suffering, or affection, of certain organs, than of other parts of the system. Hence, when a cause sufficient to produce disease, exists in the body, the disease will assume such a character as the peculiar state of the organs, or the idiosyncrasy of the person, may chance to give it. We may also further observe, that the application of particular deleterious substances to the animal machine, generally produces similar effects in the same organs of each individual; and hence the origin of all epidemic and contagious disorders.

And however disease may affect any particular organ, or set of organs, or the whole system, it must be produced by a failure, in a greater or lesser degree, of those "powers" alluded to by Dr. Brown, the continual appplication of which is indispensably necessary to keep up a healthy action, and thus preserve a living state.

We now think the evidence, from all that has been adduced, is irresistible and conclusive, that disease is a *failure* or *diminution* of that *power* which, as has previously been shown, *sustains* and *preserves* life.

SECTION IV.

OF THE EFFECTS OF DISEASE, PARTIAL AND ULTIMATE.

The first sensible effects of disease are, lassitude, weariness, debility, mental despondency, confusion of ideas, pain, &c.; any, or all of which are indications of diminished energy of the power of life. And as the living power continues to diminish, some one or more of the attendant symptoms are aggravated; though sometimes the symptoms, at the very onset, are at their height. Such attacks as these, are always attended with a corresponding prostration of the vital power, and a proportionate degree of danger.

The living power continuing to diminish, causes the functions to become still more irregular; the secretions, in general, are more or less diminished; the excretions are either impaired or accelerated; the organs lose their tone; all of which has a tendency to diminish still farther and faster, the living power of the system. These may be called the partial effects of disease.

But if the power of nature fails, and the virtue of medicine proves unavailing, the vital force becomes weaker and weaker; the tone of the organs is more and more impaired; the functions

languish; the flame of life grows feeble and dim; the extremities become cold and stiff; the eyes are fixed in their sockets; the vital organs cease to perform their functions; the power of life is worn out—exhausted—annihilated, and death, the ultimate effect of disease, closes the scene!

Symptoms give names to disease, and are the effects, but not the cause of it. They are also the evidence of its existence; of the organ, or organs, affected by it; of the nature of the affection; and of the violence or mildness of it. Hence we become sensible of the too common error, of prescribing for the name, that is, the effect, instead of the cause of disease.

CHAPTER VI.

OF MEDICINE.

The state of the system which constituted the subject of the preceding chapter, indicates the necessity of something to restore the lost harmony to the animal economy. And it seems to be almost instinctive in man, as it is in many, if not all, of the inferior animals, to seize upon, and appropriate some of the productions of nature to this purpose.

There is nothing of a sublunary nature, in which man is more deeply interested, than in a correct knowledge of the best means which a beneficent Creator has furnished for the restoration of health. But how far the popular practitioners of medicine of the present or preceding ages, have understood those means, is a matter of both interesting and profitable inquiry.

Substances properly termed medicines, must act in unison and harmony with the laws of nature, or life. This seems such a self-evident proposition, that it is to be wondered how physicians could have been led to adopt ideas so much at variance with it. For it is a generally received opinion, not only by physicians, but by the bulk of mankind, that whatever possesses not the power of doing much harm, can do but little good. In other words, what possesses the power, in a high degree, of restoring health, also possesses, in a proportionate degree, the power of destroying life! Or to make the case plainer, if need be, powerful medicines are powerful poisons.

The learned and highly gifted Dr. S. Robinson says of "*medical poisons*, it would seem a solecism in language, the bare combination of these terms; but such is the fact—poisons, the most violent and destructive, have been denominated the most powerful and valuable medicines."

It is a sorrowful truth, that the most active and potent articles used by the faculty as medicines, and upon which they place their principal reliance, are known and acknowledged to be in an emi-

nent degree destructive to life, and subversive of the very laws which they are intended to promote. How such substances as these, could ever obtain credit as medicines, seems to be among the anomalies of our nature, and bids defiance alike to human reason, and the dictates of prudence and common sense.

Dr. THOMSON is the first medical practitioner, whose opinions have been extensively disseminated, who has adopted the rule, that food and medicine must harmonize with each other;—they often, says he, grow together in the same field, and may be gathered by the same hand. There must be a perfect correspondency and congruity between food and medicine, as both are intended alike to have a beneficial influence upon the system—the one to continue a healthy action, the other to restore it when lost; but both on the same principle or mode of action—food by continually supplying its portion of the living power in health, and medicine by furnishing the same in disease.

It is too inconsistent for belief, "that life and death can spring from the same source;" or in other words, "that the poison which destroys health, can restore it." Health and disease, or even the whole catalogue of diseases, only comprise a difference of force of the living power, and a different condition of the organs upon which this power acts. How absurd then, when the living power is weakened, and the tone of the organs impaired, to administer such articles as are, in their effects upon the healthy system, calculated directly to weaken the one and destroy the other; and, in disease, to accellerate both!

A correct knowledge of proper medicinal substances can only be learned from experience, and a close observation of nature.—The opportunities for drawing lessons from both these sources, and the qualification for profiting thereby, was eminently enjoyed by Dr. THOMSON; and unborn millions will yet have cause to bless that Providence which raised up and sustained him in a most arduous struggle to establish his improvements in the world. When his enemies and persecutors shall have long been mouldered into their parent dust, and their names and memories have long been forgotten, the name of SAMUEL THOMSON shall "stand as a splendid beacon, on the solitudes of time, to point the traveller the road to glory."

The general indications which medicine is to answer in the treatment and cure of disease, are, first, to replenish the diminished living power: second, to remove whatever of excrementitious matter may have been retained in the system: third, to restore the tone of the organs. The two first indications may be answered by stimulants, both internally and externally applied; the last by tonics, which may also be applied both internally and externally.

Both stimulants and tonics, internally applied, must be of such a nature as to be readily assimilated or converted into the same

substance with the organs upon which they are intended to act, or affect; otherwise, they do not act in harmony with the laws which govern animal life. Hence it is obvious that remedial agents must be drawn from the vegetable kingdom, because no mineral substance, however it may have been changed by the labor of the chemist, can be assimilated by the living organs. Admitting these ideas, and we think few will dispute them, what becomes of the boasted discoveries and remedies of the famous PARACELSUS, who first applied chemistry to develope the medicinal resources of the mineral kingdom? And what is the result of all the pretended improvements of mineral preparations, which have been so perseveringly studied since his day, by the wisest and best of men?—Why, that they are but refinements in error; improvements of the means which have, from that day to this, interrupted the march of true medical science.

It is not denied, that the vegetable kingdom furnishes some of the most potent and terrible poisons with which we are acquainted; but we are under no more necessity to make use of these for medicine, than we are for food. The rich stores of nature, furnish a great variety of vegetable matter; only a small part of which is proper for food, and that is only such as experience has taught us is agreeable to nature or the laws of health. The same may be said of medicine, and ought to have been long ago enforced upon its students, and upon mankind, with imperishable emphasis. But simple and self-evident as is the proposition, it was reserved for Dr. THOMSON, and our own day, to declare, that poisons, in every form, and in all circumstances, were improper remedies, being deleterious to health and life. It had escaped the cunning of the wise; the wisdom of the prudent; the researches of the learned; and penetration of the philosopher, for 4000 years, in order to manifest itself to an illiterate student of nature; as almost all other great and important facts have come to the world through similar channels.

The fact that the vegetable kingdom furnishes some of the most active and fatal poisons, instead of arguing against the propriety of placing our remedial resources in that department, furnishes the strongest evidence in favor of it. If it furnishes the most active poisons, why not the most active remedies? It furnishes directly or indirectly, all our food; and why not all our medicines? Or did a beneficent Creator place the means of sustaining our bodies, in health, upon the surface of the earth, within our immediate grasp; and the means of restoring us, when sick, within its bowels? Impossible! the goodness of Deity could not suffer this. So it follows, that whether we consult the nature of man; of disease; or of Deity, the evidence, and the result is irresistible, that the vegetable kingdom alone, furnishes the proper remedies for removing our maladies. We will now examine more in detail, the subject of this chapter.

SECTION I.

OF THE MEDICINES IN COMMON USE BY THE MEDICAL FACULTY.

The materia medica, as it is technically termed, has been destined to undergo as many revolutions as the theories of medicine have done; and has more often been attempted to be pruned of useless or pernicious articles; whilst others of more destructive qualities and dangerous powers, have been added to it.

Various writers have been at much pains to contrive what each conceived to be a suitable arrangement of the articles composing the materia medica. Some have classed them according to their natural resemblance; others according to their real or supposed virtues; others according to their active constituent principles; whilst others have them arranged in alphabetical order. Each of these arrangements has its peculiar advantage; but as only a very few of the long catalogue of articles embraced in the materia medica of the schools, enters into our arrangement, we shall content ourselves with passing over this subject as lightly as possible.

By Murry, the articles composing the materia medica have been arranged as follows, viz:—

A. General stimulants.
   - a. Diffusable. — Narcotics, Antispasmodics.
   - b. Permanent. — Tonics, Astringents.

B. Local stimulants. — Emetics, Cathartics, Emenagogues, Diuretics, Diaphoretics, Expectorants, Sialagogues, Errhines, Epispastics.

C. Chemical remedies. — Refrigerants, Antacids, Lithontriptics, Escharotics.

D. Mechanical remedies. — Anthelmintics, Demulcents, Diluents, Emollients.

Under these different classes of medicines, is included upwards of two hundred articles; amongst which number, from sixty to eighty are accounted poisons. In all this number, however, not

more than from forty to fifty, it is affirmed by Dr. Ewell, are needed in practice, whilst others enumerate eighty or a hundred, and others more than two hundred. But of the lowest number mentioned, not more than half are in common use. The chief of these are, of the class of Diffusible Stimulants; Brandy, Ether, Camphor, Opium, Hemlock or Sicuta, Digitalis or Foxglove, &c.; of the Permanent Stimulants, are ranked as Tonics; Mercury or Quicksilver, Iron, Zinc, Copper, Arsenic, Cinchona or Peruvian bark, Columbo root, Gentian root, &c.; of those ranked as Astringents; Oak bark, Tormentil, Kino, &c.; also, Lead, Zinc, Copper, Iron, &c.; of the class of Emetics: Ipecacuanha, and Emetic Tartar; of the class of Cathartics; Calomel, Jalap, Aloes, Gamboge, Rhubarb, Senna, Castor oil, Salts, &c.; of Emmenagogues; Castor, Iron, Mercury, Bark, &c.; of the class of Diuretics; Potash, and its different preparations, Digitalis, Squills, Cantharides or Spanish flies, &c. The remaining classes, comprehend many of the articles just named, as well as others which it is deemed unnecessary to enumerate.

SECTION II.

OF THE EFFECTS OF SOME OF THE FOREGOING MEDICINES UPON THE ANIMAL ECONOMY.

Having now taken a view of the most approved classification of the medicines used by the medical faculty, and also very briefly enumerated some of those in most common use, we will turn our attention to a consideration of the effects which many of them produce upon the human system. And in doing this, we shall confine ourselves to such articles as are known to be the most active and dangerous; without wishing, however, to be understood as believing that all the articles of the materia medica, possess dangerous powers, or condemning all as useless or inert. Many articles, especially in the classes of tonics and astringents are safe and valuable medicines; but it cannot be so said of all.

It is desirable that mankind, even if they persist in taking the different fashionable preparations of Quicksilver, Arsenic, Antimony, Hemlock, Foxglove, Nightshade, Opium, Nitre, &c. should understand the true nature and effects of those poisonous drugs; when, if they become sufferers thereby, they may be fully sensible of the cause of their sufferings. By the symptoms arising from the accidental, or intentional taking of any of those articles, whether for medicine or self-destruction, which will be detailed, most persons will be enabled to know what kind of poison has been administered or taken; the mode of treatment will be given in a succeeding part of the work.

It is also worthy of special remark, that many articles used in the old practice of medicine, although they might scarcely be considered poisonous, act in so partial a manner upon the system as to be dangerous in many cases. Thus we see that certain remedies act upon the stomach and intestines; others are supposed to act specifically upon the liver; others upon the absorbent system; others upon the blood vessels; others upon the kidneys; others upon the skin; and others upon the uterine system. It is well known, that in certain diseased states of some of these organs and parts of the system, many medicines, which otherwise would be considered useful, are to be regarded as dangerous and even fatal.

These remarks will also more especially apply to those which are acknowledged to be poisonous. And how often have we heard physicians lament the impropriety of administering the best medicines to remove the disease, because some peculiar circumstance indicated that dangerous consequences would result from it: a sure and almost unerring indication that the remedy would act contrary to the laws of nature in any case. Proper remedies act upon general principles; and if we have the best remedies in one case, we have them so in all. The remedy which is not a friend to the system in the worst case of disease, is an enemy in all. And how it ever could have entered into the minds of physicians that such articles as we are about turning our attention to, could be useful as medicines, is beyond conception, and affords but an additional proof of the proneness of the human heart to err.

Antimony.—"The antimonial metal is a medicine of the greatest power of any known substance; a quantity too minute to be sensible in the most delicate balance, is capable of producing violent effects, if taken dissolved, or in a soluble state."—[*Thacher, page* 392.]

But notwithstanding the extraordinary powers of this article, a vast amount of it is used as medicine, particularly in the forms of James' powder and emetic tartar.

The fatal effects attending the taking of antimony in its crude or metallic state, have not, to our recollection, been recorded by any author whose works we have perused, or had access to; but those attending the exhibition of tartar emetic, the most common form of its administration, have more often been noticed.

"For children, emetic tartar is unsafe: when great debility of the system is present, even a small dose has been known to prove fatal." "As an emetic it is chiefly given in the beginning of fevers and febrile diseases; but when great debility is present, and in the advanced stages of typhoid fever, its use is improper, and even sometimes fatal." "In larger doses, this salt is capable of acting as a violent poison."—[*Hooper's Dictionary, page* 74.]

Dr. Robinson says, "Tartar emetic as has been found after death, produces the most deleterious effects upon the stomach; and yet is

given to remove disease, and called an excellent remedy; but is now denounced by those who are disposed to purge the materia medica; as may be seen in the Transactions of the Royal Society, for 1811–'12." Tartar emetic even externally applied, produces powerful effects. By its corrosive quality, it destroys warts, if applied to them in powder, or dissolved in water. Another property which it also has, when rubbed on the skin, is that of producing a crop of pustules very like to the small pox; and with this view it is used for rheumatism, white swelling, &c.

"The preparations of antimony," says ORFILA, "are often administered carelessly, because no danger is thought to attend their use. Experience, however, proves that tartar emetic, if it does not excite vomiting, may produce death when given in the quantity of a few grains: instances, indeed, have occurred, in which an extreme prostration and debility have succeeded the administration of a *single grain* of this poison, when it has occasioned no evacuation. Sometimes, on the contrary, and particularly in infants, it excites vomiting so copious and painful, as to require an immediate arrest."—"Mixed with lard and other substances, and applied as an irritant to the surface of the body, tartar emetic may produce poisoning and death!"

ARSENIC.—This metal exists in great abundance in the mineral kingdom. It is found in Italy, Hungary, Germany, and the United States. In the town of Warwick, Orange county, New York, there is a huge vein of this metal in a mountain range, sufficient, it is said by a traveller, to poison the whole world. [*See Hooper's Dict. page* 91.]

Arsenic is used in various arts, as well as in medicine, and enters into a variety of different preparations. It is said to be the most active of all poisons. The preparation which most often proves destructive, is denominated, in the modern nomenclature, arsenious acid.

ARSENIOUS ACID, also called white arsenic, by chemists oxide of arsenic, but more commonly known by the name of ratsbane, acts upon the human system as a deadly poison, in quantities so minute as to be insensible to the taste when diffused in water or other vehicles, by which it has often been given with criminal intentions and most fatal effects.

Arsenic has long been used externally in the treatment of cancerous affections in the form of plasters and of powder; and in either way is a pungent burning caustic, possessing dangerous powers.—"Arsenic," says Dr. THACHER, "has long been known to be the basis of the celebrated cancer powder. It has been sprinkled in substance upon the ulcer; but this method of using it is excessively painful and extremely dangerous: fatal effects have been produced by its absorption. This fact I have known in several instances, when DAVIDSON'S agents, and others, have undertaken to draw out can-

cers, when the patient would absorb enough of this poison, which seating upon the lungs, caused death by consumption, in the course of one year."

Arsenic has been much used in this country, in ague and intermittent fever, under the name of FOWLER'S Solution, or ague drops. It has also been very frequently employed, according to the testimony of Dr. DUNCAN, in Great Britain. And, "though the most *violent* of mineral *poisons*, arsenic, according to MURRY, equals, when properly administered, the *first* medicines in the class of *tonics*."—"Such are the powers of this medicine, that *two grains* of it are often sufficient to cure an intermittent that has continued for weeks." [*Thacher*.] But let the intolerable, morbid feelings, the shocking depression of spirits, the more or less serious affections of the lungs, and the many other aches and pains, tell at what expense such cures have very often been effected.

So deadly is the effect of arsenic, that "in mines, it causes the destruction of numbers of those who explore them;" and "the fumes are so deleterious to the lungs, that the artist ought to be on his guard to prevent their inhalation by the mouth; for if they be mixed and swallowed with the saliva, effects will take place similar to those which follow its introduction into the stomach in its saline or solid state; namely, a sensation of a piercing, gnawing, and burning kind, accompanied with an acute pain in the stomach and intestines which are violently contorted; convulsive vomiting; insatiable thirst, from the parched and rough state of the tongue and throat. Hiccup, palpitation of the heart, and a deadly oppression of the breast, succeed next; the matter ejected by the mouth as well as the stools, exhibiting a black, fœtid, and putrid appearance; at length with the mortification of the bowels, the pain subsides, and death terminates the sufferings of the patient."

COXE, in his American Dispensatory, page 205, in treating of arsenic, says the "Arsenious sulphurets are much used by painters, but these advantages are not able to compensate for its bad effects." "The property which it possesses of being soluble in water, increases and facilitates its destructive power; and it ought to be proscribed in commerce, by the strict law which prohibits the sale of poisons to unknown persons. Arsenious acid is every day the instrument by which victims are sacrificed, either by the hand of wickedness or imprudence. It is often mistaken for sugar; and these mistakes are attended with the most dreadful consequences. The symptoms which characterize this poison are, a great constriction of the throat, the teeth set on edge, and the mouth strongly heated, an involuntary spitting, with extreme pains in the stomach, vomiting of glareous and bloody matter, with cold sweats and convulsions.

"On dissection, the stomach and bowels are found to be inflamed, gangrenous, eroded, and the blood is fluid. Soon after death, livid

spots appear on the surface of the body, the nails become blue, and often fall off along with the hair, the epidermis separates, and the whole body speedily becomes putrid. When the quantity is so very small as not to prove fatal, tremors, palsies, and lingering hectics succeed."

"The symptoms produced by a dangerous dose of arsenic begin to appear," says Dr. BLACK, "in a quarter of an hour, or not much longer, after it is taken. First—sickness, and great distress at stomach, soon followed by thirst, and burning heat in the bowels. Then come on violent vomiting and severe colic pains, and excessive and painful purging. This brings on faintings, with cold sweats, and other signs of great debility. To this succeed painful cramps, and contractions of the legs and thighs, and extreme weakness, and death." "Similar results," adds Dr. AKERLY, "have followed the incautious sprinkling of schirrous ulcers with powdered arsenic, or the application of arsenical pastes."

ORFILA, in his work on poisons, gives the symptoms attending the taking of this powerful poison more in detail; though it is not to be understood that the whole of them are always to be met with in one subject. His account is as follows: "An austere taste in the mouth; frequent *ptyalism;* continued spitting; constriction of the *pharynx* and *œsophagus;* teeth set on edge; hiccups; nausea; vomiting of brown or bloody matter; anxiety; frequent fainting fits; burning heat at the *præcordia;* inflammation of the lips, tongue, palate, throat, stomach; accute pain of stomach, rendering the mildest drinks intolerable; black stools of an indescribable fœtor; pulse frequent, oppressed, and irregular, sometimes slow and unequal; palpitation of the heart; *syncope;* inextinguishable thirst; burning sensation over the whole body, resembling a consuming fire; at times an icy coldness; difficult respiration; cold sweats; scanty urine, of a red or bloody appearance; altered expression of countenance; a livid circle round the eye-lids; swelling and itching of the whole body, which becomes covered with livid spots, or with a miliary eruption; prostration of strength; loss of feeling, especially in the hands and feet; delirium, convulsions, sometimes accompanied with an insupportable priapism; loss of hair; separation of the epidermis; horrible convulsions; and death!"

"Many attempts have been made to introduce arsenic into medical practice; but as it is known to be one of the most violent poisons, it is probable that the fear of its bad effects may *deprive* society of the *advantages* it might afford in this way." Experience teaches, however, that these "attempts" have been but too successful in introducing this demoniac article into medicine; and many, as might have been anticipated, have fallen victims to this destructive mineral—nay, to that reprehensible, inconsistent, and diabolical infatuation which has led physicians to the conclusion, that any substance known to be a potent poison, must also possess some very valuable

medicinal quality, than which, nothing can be farther from the truth. No thinking being, in his sober senses, could, by reasoning *apriora*, arrive at such ruinous conclusions; and the only reason why practice has led to such results, is because physicians had adopted a wrong theory.

Copper.—Cuprum; so named from the Island of Cyprus, whence it was formerly brought. This metal abounds in considerable quantities; and is found in the greatest abundance in England, Sweden, Spain, and North and South America. It is used in the manufacture of a variety of cooking utensils; and, from its poisonous qualities, has often been known to produce death. "Great care," says Thacher, "ought to be taken that acid liquors, or even water, designed for internal use, be not suffered to stand long in vessels made of copper; otherwise they will dissolve so much of it, as will give them very dangerous properties."

The effects of copper "when taken into the stomach, are highly deleterious, and often fatal. It particularly effects the primæ viæ, exciting excessive nausea, vomiting, colic pains, and purging, sometimes of blood, or, though more rarely, obstinate constipation. It also produces agitation of the mind, headache, vertigo, delirium; renders the pulse small and weak, the countenance pale, and causes fainting, convulsions, paralysis, and apoplexy."—*Thacher.*

"Verdigris, and other preparations of copper, act as virulent poisons, when introduced in very small quantities into the stomachs of animals. A few grains are sufficient for this effect. Death is commonly preceded by very decided nervous disorders, such as convulsive movements, tetanus, general insensibility, or a palsy of the lower extremities."—*Hooper.*

"But although copper be thus dangerous, some preparations of it, are in certain cases used with great advantage, both internally and externally."—[*Thacher.*] Internally, it is used as a *tonic*, and externally, as a *caustic.*

Mercury—*Quicksilver.* This metal, or the ores which contain it, abounds most plentifully in China, Hungary, Spain, and South America. Of all the metals, mercury is most extensively used as medicine; "there being scarcely a disease against which some of its preparations are not exhibited."

On account of the great reputation which some of the preparations of mercury have obtained in medical practice, and the many dangerous consequences resulting from its use, it is thought that a short history of its introduction into such extensive use, might not be uninteresting.

Mercury was originally used in the treatment of eruptive diseases; and it is owing to its success in those complaints, that it was first made use of in curing the venereal disease. "In the times immediately following this disease, practitioners only attempted to employ this remedy with timorous caution, so that of several of their

formulas, mercury scarcely composed a fourth part, and few cures were effected. On the other hand, empirics who noticed the little efficacy of these small doses, ran into the opposite extreme, and exhibited mercury in such large quantities, and with such little care, that most of their patients became suddenly attacked with the most violent salivations, attended with dangerous consequences. From these two very opposite modes of practice, there originated such uncertainty respecting what could be expected from mercury, and such fears of the consequences which might result from its employment, that every plan was eagerly adopted which offered the least chance of cure without having recourse to this mineral.

"A medicine, however, so powerful and whose salutary effects were seen by attentive practitioners, amid all its inconveniencies, could not sink into oblivion. After efforts had been made to discover a substitute for it, and it was seen how little confidence those means deserved on which the highest praises had been lavished, the attempts to discover its utility were renewed. A medium was pursued, between the too timid methods of those physicians who had first administered it, and the inconsiderate boldness of the empirics. Thus the causes from which both parties failed were avoided; the character of the medicine was revived in a more durable way, and from this period its reputation has always been maintained.

"It was about this epoch that mercury began to be internally given: hitherto it had only been externally employed, which was done in three manners. The first, was in the form of liniment, or ointment; the second, as a plaster; and the third, as a fumigation. Of the three methods just described, only the first is at present much in use, and even this is very much altered. Mercurial plasters are now only used as topical discutient applications to tumors and indurations. Fumigations, as anciently managed, were liable to many objections, particularly from its not being possible to regulate the quantity of mercury to be used, and from the effect of the vapor on the organs of respiration frequently occasioning trembling, palsies, &c. Frictions with ointment have always been regarded as the most efficacious mode of administering mercury."—[*Hooper's Dictionary.*]

It may be added, however, that the *submurias hydrargyra*, or calomel, and the *pilula hydrarg.* or the blue pill, are the preparations of quicksilver in most general use at the present day.

Mercury, as an article of medicine, is probably more extensively used than any other article of the materia medica; and hence mankind have suffered more from its use, than from all the other poisonous drugs which have hitherto disgraced medical science. In bilious fevers, which have latterly so universally prevailed in the United States, calomel has been regarded as the only evacuant of the bowels to be depended upon; and by many, perhaps the most of

practitioners, it has been considered necessary in bad cases of fever, and in many other diseases, to administer a sufficient quantity to produce salivation. And when it is wished to produce this effect speedily, it is applied externally. in the form of mercurial ointment, at the same time that it is employed internally. The disastrous effects of mercury, in every form in which it has been administered, have left fearful monuments of its destructive powers, in every city, town, village, and hamlet in the United States.

So extensively have mercurial medicines spread their ravages amongst mankind, that it has now become an important "part of the physician's study, to learn to designate and remove the maladies which are caused by them."* Mercury, says THACHER, is the most general evacuant belonging to the materia medica; whilst its different preparations are made to answer no less than ten indications in the treatment of disease. And, notwithstanding the almost universal use of mercury, in almost all diseases, "it is to be regretted," says the work just quoted, "that for the want of a more precise knowledge of the peculiar properties of mercury, and the modes of its operation, writers have not yet assigned to it an appropriate place among the curatives of disease, nor agreed upon such general principles for its administration as will enable the *best* judgment to use, without sometimes abusing it;" and says the same writer, "is not mercury by many rather given as a specific, or for *symptoms* of *disease* for which they *know not what to give?*"

"Practitioners," says Dr. HAMILTON, "prescribe, on every trifling occasion, calomel or the blue pill: thus, calomel is now almost the universal opening medicine, recommended for infants and children; and a course of the blue pill is advised, without any discrimination, for the cure of trifling irregularities of the digestion in grown persons." We will show how this indiscriminate use of mercury agrees with the sentiment advanced in HOOPER'S Dictionary; and all facts go directly to prove the correctness of it. The author of the work alluded to, in treating of the effects to be produced upon the constitution by mercury, says "Many courses of mercury would kill the patient if the medicine were only given internally, because it proves hurtful to the stomach and intestines when given in any form, or joined to the greatest correctors." It "often produces," says the same author, "pains like those of rheumatism, and nodes of a scrofulous nature;" "and occasionally attacks the bowels, and causes violent purging, even of blood." "At other times, it is suddenly determined to the mouth, and produces inflammation, ulceration, and an excessive flow of saliva." The inflammation of the mouth, sometimes terminates in mortification, and destruction of the gums, lips, cheeks, &c.

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* Preface to the American edition of Dr. HAMILTON'S Observations on the Use and Abuse of Mercurial medicines, by ANSEL W. IVES, M. D.

Mercury often produces a general and terrible effect upon the system, independently of those more local ones just described. This effect is generally termed the mercurial disease. "It is characterized by great depression of strength; a sense of anxiety about the præcordia; irregular action about the heart; frequent sighing; trembling, partial or universal; a small, quick, and sometimes intermitting pulse; occasional vomiting; a pale, contracted countenance; a sense of coldness; but the tongue is seldom furred, and neither the natural nor vital functions are much disturbed." "In this state, a violent or sudden exertion of muscular power, will sometimes prove fatal."

But time would fail us in attempting to recount the dangerous consequences which may rationally be apprehended to follow the use of this potent article; or, indeed those which actually have taken place: and it is from the effects which have taken place, that we anticipate those which may follow. Before leaving this article, however, we cannot consistently omit making a few more extracts from the valuable work of Dr. HAMILTON, on the Use and Abuse of Mercury. The depredations which this mineral has committed upon health and life, since its first introduction into practice, seem to demand that it should be exposed, in its native character, before the eyes of the world. Too much suffering and misery have resulted from the use of calomel, for any who are acquainted with its real nature, to remain idle spectators of its mighty march; walking through the world with gigantic strength, and sweeping, with its pestilential breath, thousands and tens of thousands from the stage of usefulness, and from the theatre of life!

"Among the numerous poisons," says Dr. HAMILTON, "which have been used for the cure or alleviation of diseases, there are few which possess more active, and of course, more dangerous powers, than mercury. Even the simplest and mildest forms of that mineral exert a most extensive influence over the human frame; and many of its chemical preparations are so deleterious, that in the smallest doses they speedily destroy life." "When the effects of mercury upon the human body are accurately investigated and duly considered, it cannot fail to appear, that infinite injury must accrue from its use in many cases."—*Hamilton, pages* 1, 3.

In treating of the effects of mercury, Dr. HAMILTON observes;—"Preparations of mercury, exhibited either internally or externally for any length of time, increase in general the action of the heart and arteries, and produce salivation, followed by emaciation and debility, with an extremely irritable state of the whole system.

"These effects of mercury are expressly mentioned, or virtually admitted by every author, ancient or modern, who has directed its use; and it must appear very extraordinary, that their full influence should have been hitherto misunderstood, or at least not sufficiently regarded."

"The first effect enumerated, is an increased action of the heart and arteries," which "is attended with the most obvious of the circumstances which arise from inflammation. Blood drawn from the arm of the most delicate and debilitated individual, subjected to a course of mercurial medicines, exhibits the same buffy crust with blood drawn from a person laboring under pleurisy."—*Hamilton, pages* 4, 5, 6.

"There is reason to believe, that the inflammatory diathesis induced by mercury may continue for a very considerable length of time after the mercury has been laid aside, and without any manifest signs. When individuals in this state are subjected to accidental exposure to cold, or indulge in irregularity of living, a violent and anomalous indisposition takes place, which is apt to terminate fatally, or to occasion a broken state of health."

"Salivation, or an excessive and unusual flow of saliva, in general follows the increased action of the heart and arteries, and is preceded by a certain metallic taste in the mouth, and is attended with a peculiar odour of the breath different from what is ever perceived in any natural state of disease." "In some cases, besides the ordinary ulceration of the gums, and loosening and final separation of the teeth, the tongue, moveable palate, &c. swell and ulcerate to a frightful degree."—*Hamilton, pages* 10, 11.

"Delicate individuals, especially females, generally experience after a course of mercury, various modifications of disordered feelings, communicating the idea of imaginary diseases, which unfit them for the duties of life, and render existence a burden. Among the anomalous complaints arising from this cause, may be enumerated, impaired or capricious appetite for food, with all the ordinary symptoms of indigestion, particularly retchings in the morning, and flatulency—disturbed sleep, with frightful dreams; impaired or depraved vision; frequent aches and pains in different parts of the body; occasionally such sudden failure of strength, as if just dying, and at other times violent palpitations of the heart, accompanied with difficulty of breathing. Along with all these complaints, there is such a wretchedness of look, with such a disposition to brood over their miserable feelings, that it is extremely difficult to persuade the relations or attendants of the patient that there is no serious indisposition."

Dr. Falconer says, "that among other ill effects, [of mercury] it tends to produce tremors and paralysis, and not unfrequently incurable *mania*. I have myself seen repeatedly from this cause, a kind of approximation to these maladies, that embittered life to such a degree, with a shocking depression of spirits, and other nervous agitations with which it was accompanied, as to make it more than commonly probable, that many of the suicides which disgrace our country, were occasioned by the intolerable feelings that result from such a state of the nervous system." Dr. Hamilton

adds, "to the truth of these remarks every unprejudiced physician who has been in extensive practice must bear testimony."—*Hamilton, pages* 13, 14, 5.

It is also worthy of particular notice, that the disastrous effects of mercury do not depend upon the quantity taken; "it is notorious that the very smallest quantities of mercury have suddenly proved injurious. Thus, in a lady who had had such small doses of the blue pill, combined with opium, for three nights successively, that the whole quantity amounted to no more than five grains of the mass, salivation began on the fifth day, and notwithstanding every attention, the gums became swelled to an enormous degree, bleeding ulcers of the mouth and fauces took place, and such extensive irritability and debility followed, that for nearly a whole month her life was in the utmost jeopardy. Every practitioner must have met with similar cases.

"Another common consequence of a very small dose of mercury, is an excessive bowel complaint. In many individuals, a permanent irritability of the stomach and intestinal canal has followed the accidental exhibition of a few grains of calomel."

"Dr. FALCONER mentions, that he once saw a dropsy of the breast produced by the use of a mercurial remedy for a redness in the face, which it effectually removed, but instantly produced a dropsy of the chest, terminating in death. Dr. BLACKALL has recorded similar cases."—[*Hamilton, p. p.* 20, 21.]

Dr. HAMILTON also records one case, and Dr. IVES another, which "seem to prove, that mercury may remain inert for a considerable time in the habit, and afterwards by some inexplicable circumstance, may become active."—[*p.* 21.] We have also seen at least one similar case. And that it does remain in the systems of most or all persons whose constitutions have only been slightly affected by it, without breaking forth in its peculiar and virulent form, can be attested by almost every individual who has been salivated with calomel. Such persons are commonly premonished of stormy weather, by the pains "like those of rheumatism," or as often expressed, "pains in the bones," and soreness of the flesh. In some, the glands of the mouth and throat become swelled, upon every exposure to wet or cold.

It may be thought, perhaps, that enough evidence has been adduced, from the writings of those whose profession it is to use the poisonous preparations of mercury, to satisfy the most partial, that its use ought not to be admitted as a medicine; but as the prejudice in its favor is so deep rooted and strong, and its destructive consequences so general and terrible, we cannot acquit ourselves without selecting something more from the great mass of testimony to be met with at every step in our inquiries upon this important subject.

Dr. HAMILTON, in speaking of persons who appeal to their own experience as a direct proof of the great utility of calomel, in certain cases, remarks, "But if those persons could attend impartially to the effects of that medicine, they would find that its immediate operation is severe, and that it is followed for some time by uncomfortable feelings, and by an unusual susceptibility of derangement of the stomach and bowels."—[*Hamilton, p.* 79.]

Again; "it disorders the digestive powers of the stomach; and in debilitated persons, the frequent employment of it sinks the strength, and provokes hemorrhoids.

"From what has been stated in the preceding pages, respecting injurious effects of all the preparations of mercury, and especially of calomel, upon some constitutions, and the impossibility of distinguishing those individuals to whom that mineral, in every form, is apt to prove noxious, it must be evident that no physician can calculate, with any degree of certainty, on the safe operation of mercurial purgatives; and no preparation of mercury can be administered without the risk of some consequences ensuing, which could neither be intended nor expected."—[*Hamilton, pages* 105, 106, 107.]

We must beg the reader's indulgence for a short time longer, whilst we introduce a few observations from the Appendix to the work from which we have taken the liberty to introduce so many quotations. The appendix was written by A. W. IVES, a highly respectable medical practitioner, of the city of New York. The introduction of Dr. IVES' judicious observations, together with a few quotations from other authors of experience and respectability, with a few remarks of our own, shall close our account of mercury.

"It is true," says Dr. IVES, "that those who have most zealously recommended this medicine, have not denied the danger and uncertainty of its operation; still they appear rather to have labored to give it the character of a specific, than to establish general principles which would reconcile the discrepancy of their theory and practice. 'Could a line be drawn,' says Dr. WARREN, 'between the diseases in which it is prejudicial, and those in which it is advantageous; and could the mode of administration be accurately prescribed, much of that mischief which has originated from this most active class of medicines might be avoided, and many a constitution saved from ruin.' But this is a knowledge which we can never hope to attain, and even if it were attainable, what would be the avail? There is a diversity in the character of the same diseases, arising from a difference in the circumstances or condition of the patients, which forbids the expectation that the science of medicine will be ever so perfected, and the labors of the physician so simplified, that a medicine can be safely prescribed for a name. It will continue to be the province of the physician to establish general principles from facts, and to mete out from these

such particulars as may be suitable to the multifarious character and symptoms of disease; and until some general principles shall be settled for the better regulation of the mercurial practice in fevers, however extensive and popular it may be, it will continue to be empirical."—[*Hamilton p.* 192.]

Dr. Ives remarks, that there is the closest analogy in the operation of animal poison, and mercury; "Both, says he, so far contaminate the circulating fluids as to keep up a permanent excitement for a considerable length of time; for as their properties can be destroyed by no antidote, their effects will continue till they are carried out of the system by its emunctories."—[*p.* 196.] "Nor does mercury, as has often been contended, possess the properties of a *tonic;* so far from increasing the tone of the muscular fibre, or the excitability of the nervous system, it diminishes both, in a direct ratio to the irritation which it excites."—[*p.* 204.] And "it is yet a question of dispute, whether more lives have been prolonged by a timely salivation, than have been lost by the unsuccessful use of mercury, to the exclusion of other means."—[*p.* 208.]

Dr. Barnwell, after describing the effects of mercury exhibited in the first stages of inflammation of the liver, says "these are the effects, which we have seen invariably take place, from the abuse of mercury, in the early stages of disease; so that we are not more certainly convinced of the poisonous effects of arsenic, than of those mercurials given in the acute stages of this disease."

The testimony of Dr. Reece, is also very strong against the use of mercury. "We know not, says he, whether we have most reason to hail the discovery of mercury as a blessing, or regard it as a curse; since the diseases it entails are as numerous as those which it cures. Our best informed dentists declare that they can clearly witness the progress of the use of mercury, in the increasing diseases and decay of the teeth. There are serious objections also, to other articles of the metallic world; antimony, iron, and arsenic, are dangerous remedies in the hands of the ignorant; and mankind, perhaps, in the aggregate, would be benefitted by their expulsion from medical practice."

If any should inquire why mercury is still used in medical practice, when its direful effects are so well known, the answer must be sought from several sources. "The facility," says Dr. Hamilton, "with which calomel can be exhibited to patients who are reluctant to take whatever has the semblance of a drug, is probably the chief motive for this unfortunate prejudice in favor of so hazardous a remedy; and this he very justly reprobates as a sacrifice of "conscience to convenience."—*page* 111. And Dr. Ives observes—"there is no inconsistency so extravagant that it cannot be supported by precedent, and no hypothesis so absurd, that it cannot be defended by books." It may also be added, that as the study of books is more easy to most men, than the investigation of nature,

practitioners have mostly been willing to practice under the protection of some great name, than attempt to reform the abuses of medicine.

"Had the injurious effects of calomel been hid from the rest of the profession, and known only to the author," says Dr. HAMILTON, "some apology might be offered for the pertinacity with which that medicine is still prescribed; but so far is this from being true, that it may be confidently asserted, that no medical man of competent knowledge and observation would administer calomel as a purgative, in a hundred instances, without being convinced of its injurious tendency. Of this, innumerable proofs could be cited."—*page* 109. And "it cannot be a want of deference to the distinguished advocates of the mercurial practice, to distrust the soundness of their deductions, when they are not only opposed by the acknowledged *principles* of *medical philosophy*, but by the judgment of such men as ROBERT JACKSON and Dr. LIND. To these might be added numbers of the most celebrated physicians of England, France, and America, all of whom from *clinical observation*, have decided against the practice of resting the issue of febrile diseases on the constitutional operations of mercury."—*Hamilton, appendix, pages* 191, 192.

Those who are fully aware of the tremendous consequences which have resulted from the use of mercury will not wonder that so much time has been devoted to its consideration. A great deal of attention has been devoted to this interesting subject, by experienced medical men, the chief of whom are PIERSON, MATHIAS, TROTTER, CARMICHAEL, and HAMILTON, whom we have so often taken the liberty to quote, and whose experience and observation have enabled him to form a correct estimate of the dangerous powers of mercury. He, however, supposes that "notwithstanding all the hazards resulting from the use of mercury, there can be no doubt that it has certain medicinal virtues, the most remarkable of which is the power of curing the diseases occasioned by the syphilitic virus."

In the venereal disease, he thinks the use of mercury, is the only remedy which can, with certainty be depended upon; but this sentiment of his is only to be tolerated on "the principle of necessity" growing out of the circumstances by which he was surrounded. He knew of "no other equally efficacious medicine." Fortunately, however, for the world, medicines are now known which are not only far more efficacious than mercury in venereal complaints, but in all others; besides being at the same time free from all risk and danger.

LEAD; technically called plumbum. This is a metal found in almost all countries; and particularly in the Northwestern parts of the United States. It is but little used as an internal medicine; but externally it is often applied to inflamed surfaces, wounds, scrofulous sores, and inflamed eyes. Internally it is used "in some

extreme cases of hemorrhagy from the lungs and bowels, and uterus," as an astringent; but owing to its poisonous qualities, it is exhibited in very small doses, and that but seldom. All the preparations of lead, are deadly poisons.

Lead is often used for sweetening cider or wines which have become sour; but this is a very reprehensible practice, and is only resorted to by unprincipled dealers in the article, from motives of pecuniary gain. The effect of drinking cider or wine, impregnated with any preparation of lead, is the same as those arising from the taking of it in any other way.

"The colic of painters, and that formerly prevalent in certain counties of England, from the lead used in the cider presses, show the very deleterious operation of this metal, when habitually introduced into the system in the minutest quantities at a time.—Contraction of the thumbs, paralysis of the hands, or even of the whole extremities, have not unfrequently supervened."

The symptoms of poisoning from lead, are thus graphically described in the Book of Health: "Constriction in the throat, pain in the stomach, obstinate, painful, and frequently bloody vomiting." Dr. THACHER, in his Dispensatory, says "its effects on the body are emaciation, violent colics, paralysis, tremors, and contractions of the limbs; as they generally come on gradually, the cause is sometimes overlooked, until it be too late. Poisoning from lead is occasioned, either from liquors becoming impregnated with it, by being improperly kept in vessels lined with that metal, or to which lead has been criminally added to correct its acidity; or among manufacturers, who work much with lead, as painters and plumbers, and who are not sufficiently attentive to avoid swallowing it."

"A dreadful disease," says Dr. THOMAS, "of a similar nature with the colic under consideration, (*colica pictonum*, or dry bellyache) and caused by the destructive fumes of melted lead, is known to be very prevalent among those who are employed in smelting or preparing this metal, and is said to attack even those who live near the furnaces."

Speaking of the *acetite* or sugar of lead, Dr. THACHER says,—"Like the other preparations of lead, this is a violent poison."—"The internal use of it, notwithstanding the encomiums some have been rash enough to bestow upon it, is entirely to be rejected."

The *subcarbonate* of lead, or white lead, "is sometimes employed medicinally, in form of powder or ointment, to children whose skin is fretted. It should, however, be cautiously used, as there is great reason to believe that complaints of the bowels of children originate from this source."

NITRE.—*Nitrate of Potash—Salt Petre.* This article is pretty extensively used, "in numerous disorders. Its virtues are those of a refrigerant and diuretic." It also promotes insensible prespiration in fevers. "This powerful salt, when inadvertently taken in

too large quantities, is one of the most fatal poisons. There are several attested cases on record, and some recent instances might be added, in which from half to a whole ounce of salt petre, has occasioned violent vomiting, convulsions, swelling, and other painful symptoms in persons, who by mistake, had swallowed it in a dissolved state, instead of glauber or similar salts."—*Thacher's Dispensatory.* "In large doses, such as an ounce, taken at one time, it produces the most dreadful symptoms, constant vomiting, purging, mixed with blood, convulsions and death."—*Coxe's Dispensatory, p.* 445. "I have found from a series of practical experiments. for many years, that salt petre has the most certain and deadly effect upon the human system. of any drug that is used as medicine. Although the effects produced by it are not so immediately fatal as many others, yet its whole tendency is to counteract the principles of life and destroy the operation of nature. Experience has taught me that it is the most powerful enemy to health, and that it is the most difficult opponent to encounter, with any degree of success, that I have ever met with."—*Dr. Thomson's New Guide to Health, pages* 26, 27.

Opium.—This is the inspissated juice of the white poppy, or *papaver somniferum.* The best opium is brought from Turkey; and a very inferior kind from the East Indies. It may also be made from the common poppy of this country. The Turks have the same kind of fondness for it, that the people of this country have for tobacco and ardent spirits.

Opium is exhibited as a narcotic, to procure sleep, and as an anodyne to assuage pain. It is also used as an antispasmodic, and to restrain diarrhœa. Indeed, there are few diseases in which this powerful article is not employed, either in substance, as in pills, or in tincture, as in laudanum. A still weaker preparation of it is to be found in the paragoric elixer.

The specific action of opium on the living system, by which it produces its peculiar effects, has been the subject of the keenest controversy amongst medical men. Some affirm it to be a powerful stimulant, and others, that it is a direct sedative. To our view, it appears very clear, that its most important effects are sedative. It appears to possess but very little, if any power, directly to remove the cause of any disease whatever. It produces sleep—removes pain—relieves spasm—and checks diarrhœa; but it does it by destroying sensibility. It renders the living fibre insensible to the stimulus of those causes which give rise to those peculiar states or conditions of disease; and its debilitating effects are well known to those who have taken large quantities to remove spasm, or cure the lock-jaw. But as this, like all other violent poisons, is fast running its popular career, and is disused in the new practice of medicine, it is unnecessary to dwell longer upon this controversy.

"Opium taken into the stomach in a large dose, gives rise to confusion of head and vertigo. The powers of all stimulating causes to make impressions on the body are diminished; and even at times, and in situations, when persons would naturally be awake, sleep is irresistibly induced. In still larger doses, it acts in the same manner as the narcotic poisons, giving rise to vertigo, head-ache, tremors, delirium, and convulsions; and these terminating in a state of stupor, from which the person cannot be roused. This stupor is accompanied with slowness of the pulse, and with stertor in breathing, and the scene is terminated in death, attended with the same appearances as take place in an apoplexy."—*Thacher's Dispensatory.*

"It is a melancholy consideration, that opium is frequently resorted to for the horrid purpose of self-destruction. The alarming symptoms induced by it, are vomiting, delirium, stupor, deep and difficult breathing, convulsions, and death."—*ibid.*

Digitalis Purpurea—*Foxglove.*—This powerful vegetable, when taken into the stomach, produces an effect directly sedative upon the blood, and also decreases the irritability of the system; and is said to increase the action of the absorbents, and in dropsy it is used as a diuretic. It has been highly recommended in consumptions, palpitations of the heart, asthma, &c. in which, by many practitioners, it has been extensively used.

"Of all the narcotics, digitalis is that which diminishes most powerfully the actions of the system; and it does so without occasioning any previous excitement. Even in a moderate dose, it diminishes the force and frequency of the pulse, and in a large dose, reduces it to a great extent, as from seventy beats to forty or thirty five in a minute, occasioning at the same time vertigo, indistinct vision, violent and durable sickness, with vomiting. In still larger quantity, it induces convulsions, coldness of the body, and insensibility, symptoms which have sometimes terminated fatally."

"The administration of this remedy requires to be conducted with much caution. Its effects do not immediately appear; and when the doses are too frequent, or too quickly augmented, its action is concentrated so as to produce frequently the most violent symptoms.—*Hooper's Dictionary.*

Dr. Withering, who first introduced the digitalis, in the treatment of dropsy, lays down certain explicit rules for its administration; referring to these, Dr. Thacher, in his Dispensatory, says, "without the strictest attention to which, no practitioner should prescribe this powerful and singular medicine." Dr. Thacher further adds, "Such are the active and virulent qualities of this plant, that it ought not to be entrusted to the direction of the inexperienced practitioner; nor resorted to, without due attention to the state of the system; and when administered, its peculiar effects should be discriminated with the utmost vigilance

and precision. Dr. RAND relates for admonition, one melancholy example of the fatal effects of digitalis, in a man, who having experienced relief from its use, adventurously exceeded the extent enjoined by his physician. And well may cautions and admonitions be given in regard to the use of an article possessing such influence over the sanguiferous system. What else could be rationally expected, than that if it possessed the power, in a moderate dose, of reducing the pulse from seventy to thirty five, a larger dose would check it altogether. It is also poisonous when applied to wounds or sores.*

HEMLOCK —*Cicuta*—"This is a large biennial umbelliferous plant, which grows very commonly about the sides of fields and hedges, and in moist places The root is white, long, of the thickness of the finger, contains when young a milky juice, and resembles both in size and form, the carrot. In spring it is very poisonous, in harvest less so. The stalk is three, four, and often six feet high, hollow, smooth, and marked with red or brown spots. The leaves are large, and of a dark green color, having a faint disagreeable smell, resembling the urine of a cat. The seeds are inferior in strength. The whole plant is a virulent poison, but varying much in strength according to circumstances. When taken in an over dose, it produces vertigo, dimness of sight, difficulty of speech, nausea, putrid eructations, anxiety, tremors, and paralysis of the limbs; to which may be added, dilatation of the pupils, delirium, stupor, and convulsions."—*Thacher's Dispen.*

PRUSSIC ACID—*Hydrocyanic acid.*—It was but lately that this substance became known in its simple separate state; and still later that it was introduced into medicine. Prussic acid is most readily obtained from the pigment called prussian blue; but it is also made from some vegetable productions, such as the bitter kernals of the drupaceous fruits, particularly the peach. It is used in pulmonary complaints, particularly whooping cough, consumption, asthma, &c.

The prussic acid is said to be the most violent of all poisons.—"SCHARINGER, a professor at Vienna, spread a certain quantity of it upon his naked arm, and died a little time thereafter." "When a rod dipped into this acid is put in contact with the tongue of an animal, death ensues before the rod can be withdrawn. If a bird be held a moment over the open mouth of a vial containing prussic acid, it dies."—*Hooper's Dictionary.*

There are also many other poisonous articles used as medicine; but we have already perhaps, dwelt sufficiently long upon this unpleasant subject. Most persons can call to mind cases which they have either seen or heard of, corroborative of the statements respecting the deleterious, or destructive effects of many of the

*ORFILA on Poison.

medicines in common use by the medical faculty. And in treating upon this matter we have preferred giving quotations from the writings of those whose profession it is to use those potent articles, to making our own observations, as it must be admitted that they, better than others, are aware of their powers, and of their fatal tendencies and effects; and we cannot suppose they will tell any more than is true. But it is time to leave a subject which calls up in review before the reader's imagination the pale, emaciated, and frightful visage of some acquaintance, neighbor, or tender child, or endeared companion, who has fallen a victim to the destructive powers of those potently poisonous substances falsely gilded by the title of medicine; the fearful effects of which have been accumulating for the last fifty years with ruinous consequences and disastrous powers; yea, we might say, with more fatal violence, in many portions of the globe, than pestilence, famine, or the sword!

SECTION III.

OF THE MEDICINES USED IN THE NEW PRACTICE OF MEDICINE.

THE articles of the materia medica, accompanying the New Practice of Medicine, are few in number compared with those which have been admitted into the older works upon that subject. But however small the number may be, they are very ample, comparatively, in their power to restore the sick to health. New remedies are also developing themselves to the industrious enterprize of Botanical Practitioners; and there is good reason to believe, that a few years of careful observation, will put the world in possession of the means of curing almost every malady to which the human frame is liable. It is, however, to be hoped, that every individual engaged in the noble work of improving the healing art, may observe the utmost simplicity in his observations, and in the rules which he lays down.

The following classification of remedies have been adopted in conformity with the New Physiological Theory, as well for its perspicuity and simplicity, as from a firm conviction of its coming nigher the truth than any other which has heretofore been offered:

A. General Stimulants.

1. Diffusable. Lobelia.

2. Permanent. Cayenne, (African.) Red Pepper, (Common.) Black Pepper, Ginger, &c.

B. Tonics.

1. Astringent.
   - Bayberry,
   - Beth or Birth Root,
   - Sumach,
   - Red Raspberry,
   - Witch Hazle,
   - Hemlock Bark,
   - Blackberry Root, &c.

2. Bitter.
   - Golden Seal,
   - Poplar Bark,
   - Unicorn Root,
   - Balmony,
   - Columbo Root, &c.

C. Local Stimulants.

1. Cathartics.
   - Butternut,
   - Mandrake,
   - Rhubarb,
   - Castor Oil, &c.

2. Diuretics,
   - Spirits of Turpentine,
   - Sumach Leaves,
   - Harlæm Oil,
   - Elder Bark, &c.

3. Rubefacients.
   - Cayenne,
   - Red Pepper,
   - Brandy, &c.

This classification goes much farther than was ever anticipated by the great prototype of the new system of medicine, Dr. THOMSON, who sums up the principles of the healing art, in the terms, *hot*, *rough*, and *bitter*,—stimulants, astringents, and bitters. We may have been too prolix in this classification; but are fully satisfied that we have been enough so, and better that it be abridged than enlarged.

To all who are desirous of improving the practice of medicine, we would seriously recommend the adoption of such new articles of medicine, as come clearly and distinctly within the classes of general stimulants and Tonics; and that they be such as, when chewed in the mouth, do not dry up the saliva or other juices. Even astringents, although their obvious and characteristic effect is to harden the muscular fibre, and give it a firmer tone, ought not to be of that arid nature that many astringents are, drying up the juices of the mouth, and, consequently, it may be fairly inferred, of the whole system. And however astringents may be indicated, and ought to be used in most cases of disease, yet they must not be of such a nature as to dry up the fluids, or prevent their passage through their proper vessels, as this is absolutely necessary in

a state of health; and the suppression of it would be perverting the order of nature, which we are endeavoring to restore.

Although astringents, when chewed, contract and produce a roughness of the mouth, as any one acquainted with the term at once will know, yet there are articles which possess this power, that do not materially affect the passage of the fluids. Every person, by tasting different articles, can satisfy himself of the truth of this observation. And it is laid down as a general rule, by Dr. THOMSON, that any article, no matter to what class it belongs, which, on being chewed, produces a dryness of the mouth, ought to be rejected as a medicine. This rule, which is presumed to be original with Dr. THOMSON, we consider to be founded upon correct medical and physiological principles that ought never to be disregarded in selecting a remedy.

As it is not pretended that this work contains, or that the present knowledge of medicine embraces, all the most valuable articles of medicine which a beneficent Creator has endowed the world with; but that many, very many, remain yet to be discovered, it may not be amiss to suggest some other general rules to be observed in the experiments and investigations relative to this important subject:

1. Every substance used as a medicine, ought to act in unison and harmony with the laws of nature, and not contrary to them. Medicines of this character, are always safe, and universally applicable. 2. If they do this, they will, instead of prostrating the strength of the patient, have a tendency to restore it. All medicines and means whatever, which, in their effects upon the system, weaken the power of life and produce debility, ought to be rejected as improper. 3. Any article which produces unnatural actions in the system, either increasing or checking the secretions or excretions beyond what health requires, ought also to be rejected. It is generally variations of these actions from a healthy standard, which constitute, or rather attend disease; the object of cure is to restore a healthy action. 4. By all means avoid all articles known to be poisonous, especially in small quantities.—They always pervert the very order which we wish to restore—the harmony of nature. 5. Endeavor to ascertain to which class the adopted article belongs; and that, although it may be peculiarly adapted to some particular disease, it is not deleterious in any.—This is a desideratum, we think, attainable in medicine.

SECTION IV.

OF THE EFFECTS OF THE FOREGOING MEDICINES UPON THE ANIMAL ECONOMY.

CAPSICUM ANNUUM—*Cayenne pepper.*—This article, considered with regard to the extent of its powers and its universal applicability to the cure of disease, may be regarded as of the utmost importance

in the materia medica. It is the best article hitherto known, for restoring the lost energy of the system, which is the universal cause of disease, and should almost always be used.

LOBELIA INFLATA—*Emetic herb.*—This herb, for the extent and variety of its curative powers, stands unrivalled amongst botanic remedies. It acts as an emetic, antidote to poisons, and diffusible stimulant. But its stimulant powers are of such a nature that they are soon exhausted, and must be followed by something more durable. The cayenne pepper is the best article for this purpose, and should always be administered previous to the lobelia, as well as with it, and after its operation has ceased.

As all the different articles composing the new materia medica, will necessarily have to be treated of more particularly, in another place, we will let the brief notice of the two articles just named suffice; and close this section with some general remarks upon the effects of the new medicines.

The reader will recollect, that in a preceding section, we took a view of the effects of what have emphatically been denominated the "heroic medicines"—effects so destructive and appalling, that one might rationally conclude they ought, long since, to have been consigned to that oblivion which their dangerous powers richly merit; and into which, in time, they no doubt will be plunged.

But in surveying the thousands of subjects upon which the Botanic Practice has been tried, we find not one solitary case of that permanent loss of appetite—that mournful dejection of spirit—that sinking of the soul, and loathing of life, which often follows a course of the severe medicines of the old practice.

The new remedies, says Professor ROBINSON, in his excellent Lectures, "possess an energy which seems to communicate new life to the system, and renovate the feeble, fainting powers of nature." We have often remarked to persons whom we were instructing, that the botanic remedies upon which we are treating, acted in unison and harmony with the laws of animal life; as much so as our food. This may be considered by many, no doubt, as the wild hallucination of an extravagant enthusiast. But we can cheerfully submit to those who have had the most ample experience of the effects of our botanic remedies, whether this assertion is not more consistent with truth than it is to consider calomel, and all the heroic remedies, as medicines. "A remedy," says ROBINSON, "*worse* than the *disease*, is no remedy; it may hold the rank by prescription; but it is an authority as unhallowed as the tyranny of eastern despots." But calomel has thus been styled, and, at the same time, its disastrous powers deplored, by some of the best men who have ever adorned the walks of medicine.

The objections of the advocates of poisonous medicines, to the proposition, that our remedies act in harmony with the laws of life, have been, in part, fully answered in a former chapter; but

there is another, of which no special notice has been taken. It is objected to this proposition, that *vomiting* is contrary to, or a reversion of, the laws of nature; because in a healthy state, vomiting never takes place. This objection, however, is more specious than solid. For, although it may be a fact, that vomiting does not take place in a healthy state, yet it often takes place spontaneously, and thus affords relief in a diseased state. Hence we may observe, that although vomiting does not take place spontaneously only in disease, it is in accordance with a law of nature, which only acts in certain conditions of the system; but always with a healthy intention. Now is there any thing paradoxical in supposing, that something not inimical to the laws of life might be discovered, which would assist nature in performing this operation; assist nature in doing what she herself would do, were she capable? We answer with confidence, no!

Vomiting is perfectly consistent with the laws of nature or animal life; and a medicine has been discovered, perfectly innocent and harmless, which exactly corresponds with that law, and may be administered with impunity to both sexes, and all ages and conditions of life. Indeed, it must follow, that if these medicines act in unison and harmony with the laws of life, there can be no disease of any name or nature, whether of young or old—male or female, but what it is proper to administer it; and, if it be done seasonably and perseveringly, it must have a good effect. Here no time need be lost in hesitating what remedy to prescribe—no anxiety about ambiguous symptoms—no objections to giving the best remedy because of peculiar circumstances, situations or habits of life of the patient. These medicines, acting in harmony with nature's laws, may be promptly administered in all cases; and the more violent and dangerous the symptoms—the more nature's laws are perverted or disturbed, the greater the necessity for applying the best and most powerful remedies.

An acquaintance of ours, formerly a surgeon in the United States' army, and who is enjoying at this time a very respectable character in private life, observed to us, as a reason for abandoning the practice of medicine, that when he went to the best friend he had in the world, and was exercising his best skill and judgment to relieve him of his maladies, with all his anxiety and solicitude, he was still involved in uncertainty whether he should kill or cure.—What a most deplorable picture does this frank, honest, and disinterested confession exhibit of the old practice of medicine. But different, far different from this must be the feelings of him, who has become fully acquainted with the botanic practice. He goes forth in the noble work of healing the sick, with the fullest confidence in the power, the innocency, and the efficacy of his medicines; being confirmed beyond all doubt, that if he can do no good, he will at least do no hurt.

It is perfectly incredible to those unacquainted with the new practice, the facility with which a healthy action is often in the very worst cases restored to the exhausted organs of the system. Most persons have witnessed the secondary effect of opium administered in large quantities, as is often the case in spasms and convulsions; the extreme dullness, lassitude, headache, and debility, continuing for several days: and who has not become familiar with the morbid effects of calomel? the pale, contracted countenance; the intolerable langor; the great depression of strength; the insupportable anxiety, so often following through life, those who have unfortunately been made the subjects of experiment with this mischeivous article. But nothing of this, says Dr. ROBINSON, is ever "witnessed in the exhibition of the botanic remedies; but, on the contrary, a degree of animation and desire for food, which, to myself, was perfectly astonishing; and I presume must be to every one who perceives it for the first time. It was so contrary to what I had ever before witnessed, and especially in the same patient, who had taken medicine for years before, and always with the loss of appetite, that I could not, without sinning against my own soul, withhold my testimony and approbation."

How often have individuals, after a course of botanic medicines, reiterated the expression, "I feel like a new creature." The animating and invigorating power of medicines which produce their remedial effects by restoring a healthy action to the system, must if persisted in, sooner or later, produce consequences well calculated to call forth from the poor dispirited valetudenarian such an impressive ejaculation. The good effects of these medicines are often so sudden and unexpected to those unacquainted with their powers, that their expressions have given evidence of the extacy and transport of their feelings. Indeed, what can be more ravishing to the mind of any person on feeling his maladies yield to medicine, who has for years been on the verge of the tomb; weighed down by a wearisome depression of mind, and unceasing pain, and without even the hope of relief; or of another who has been violently seized with some acute and painful malady which is threatning him with certain and sudden dissolution? They only can know, who have been unexpectedly snatched from the confines of eternity.

We hope to be excused in once more introducing to the reader, a quotation from the learned and talented Dr. ROBINSON, whose glowing language, and excellent observations, we take a pleasure, on every suitable occasion, of borrowing. "Were I to recount," says he, "the incalculable advantages of this new system, it might astonish the ignorant, and admonish the wise; while both would be drawn into an extensive field of remark and meditation." "This botanic medicine purifies the blood, restores the tonic power of the fibres, and of the stomach and digestive organs; reanimate

the whole frame; rouses the animal spirits, and acts, as it has been said to act, in harmony with life, in support of health, and in opposition to disease."

SECTION V.

OF THE HEALING POWER OF NATURE.

Various terms have been adopted by different physicians, since the days of Hippocrates, to designate this power or principle, almost universally allowed by medical writers to exist. Some, however, whose lofty, aspiring minds disdained the idea of admitting that nature performed any part in the curing of disease, have denied its existence. Such an admission, they think would be detracting too much from the high pretensions of the professors of medicine. The physician's skill must have more credit than the adoption of such a proposition would accord to it—his study and learning, and profound knowledge of the human system and of medicine, must have more respect and deference paid to them than to suspect that nature has any thing to do with curing disease. Nature, to use the vulgar expression of a professor of medicine, "must be kicked out of doors," and the boasted controller of her laws, assume her place, and dictate her operations.

Hippocrates bestowed upon the healing power of nature, the name of autocrateia, but in modern times, it has assumed the more comprehensive appellation of vis medicatrix naturæ; yet this has no advantages, even amongst the learned, over the plain, simple, and intelligible terms adopted at the head of this section. The idea of such a principle or power, in the animal economy, whether true or false, has descended from the "Grecian luminary," and is not only found in the schools of medicine, but in the mind of the multitude, at the present hour. From the supposition of a healing power in nature, and perhaps other circumstances conjoined, it is probable has arisen an idea of the *efforts* of nature, with which many modern writers have become entangled. A fever, for instance, is said to be an effort of nature to throw off morbific matter from the system, and thus restore the patient's health. This appears eminently to have been the idea of Hippocrates and Sydenham.

"Dr. Cullen," observes Robinson, "says, the increased action of the heart and arteries, which take place in the hot stage of fever, has long been considered as an effort of nature to repel disease, by physicians: and the cold stage, also, as an effort of the same power. In this sedative state, nature is concentrating her powers, to that formidable resistance against the enemy, which she displays in the strong paroxysm of fever; for it has been observed, that the paroxysm is always in proportion to the force of the chill.

Such ideas as these, are more becoming the age of romance and fiction, when every thing mysterious was attributed to the influence of its peculiar deity; when the gods were personified, and the passions deified, than they are of the enlightened age of Dr. CULLEN. This doctrine looks too much like the infancy of science, when the operations of life were attributed to a perceptive or sentient principle, of which the mind was totally unconscious, to be adopted at this day, when it is admitted that the operations of nature are to be assigned to causes consistent with the effects produced.

But admitting that fever is an effort of nature to relieve herself of some noxious matter, a proposition pretty generally adopted by physicians, and how does the fashionable practice of treating fevers correspond with it? The common custom is to bleed, blister, physic and starve the patient, and dose him with nitre and other refrigerants, for the avowed purpose of *cooling* the fever. The new French practice is to bleed and starve the patient, when, as BROUSAIS remarks, the disease will soon burn out of itself. If fever be an effort of nature to expel hurtful matter from the system, or if it be a violent action of the living power to repel the assault of disease, it would certainly be more consistent to promote this action, or assist this effort, than it is to retard or countervail it, by cold sedative medicines, whose sole effect consists in allaying the heat and excitement of fever.

It is very evident from the view which has been taken, that the theory and practice of physicians, in febrile complaints, are at variance with each other. If their theory be correct, their practice is inconsistent; and if their practice be right, their theory is erroneous. The probability is, that both are incorrect.

In order to prevent any misconceptions of what we have already written upon the subject, as well as to enable the reader to fully understand what follows, we will give what, from every consideration, we deem a correct definition of the term *nature*. There is scarcely any term in medicine, or any other science, the meaning of which is so vague, or illy understood in general, as this; notwithstanding its almost universal use, both by the learned and the ignorant.

We speak of the works of nature—the operations of nature—laws of nature—efforts of nature, as if nature were an animate, percipient, and rational being, capable of creating matter, of making laws for its government, and, if necessity require, to make extraordinary exertions or efforts to prevent those laws from being infringed or broken. But without taking up more time in multiplying remarks upon this subject, we will come directly to the explanation of the term as we use and understand it, and as we think it ought always to be understood in medicine, when applied to the human system.

It will be recollected, that we have endeavored in a former chapter, to show that life is a forced state; that it is kept up in the living system, by the application of a foreign power; and, that this power, in its nature or qualities, is and must be a stimulant. Because every article or substance, having the power to support the living system, does it by a stimulant or forcing operation. Now *nature* is the *susceptibility* of the living organs or fibres of the human system, to be acted upon by stimulants, whether in health or disease; as disease must be cured by stimulants, as well as health and life supported by them. Now the susceptibility of the living fibres of being acted upon, and the capability of stimulants to act upon them, is derived from certain principles innate in both; or which, as we would say, is naturally inherent in them. These principles, as they govern, limit or extend this action, may aptly be termed the law of nature. Therefore, the laws of nature, are those rules, principles, or laws, which govern the action or effects of stimulants upon the living system; and the operations of nature may be defined, the effects of those principles, both in the stimulants and the living fibre, mutually acting upon each other.

From this view of the subject, which we deem to be correct, nature must be passive, acting only as she is acted upon by other agents: And, effort, always implying activity in the agent by which the effort is made, cannot, with any propriety be applied to passive nature.

But, although we thus deny the propriety of considering disease as an effort of nature, and from this denial may be also implied a denial of the healing power of nature, or *vis medicatrix naturæ* of the schools, yet we have an unwavering confidence in a power or principle equivalent to it, but susceptible of a different, and we conceive more correct explanation, in accordance with our proposition of passive nature.

It is obvious, that in disease, the natural healthy stimulant powers are measurably cut off, particularly the food, and the organs being impaired are not capable of properly applying those which remain; hence the body becomes emaciated and the strength fails. In this situation there is, therefore, less power to act upon and stimulate nature to increased exertion or effort, to repel or throw off disease. Moreover, if it were by an effort of nature, that diseases were cured, this event could happen, only at the very onset, as it must be admitted that nature's power to make an effort, is then at its zenith, and is growing weaker and weaker as disease progresses.

But instead of such a hypothesis as this, it appears much more rational to conclude that the system of man is so constituted, by the Author of his existence, that every disease produces an effect which is calculated to remove the cause by which it was produced, And why should any be startled at this? The Creator of all

things could as easily implant this quality or principle in the constitution of man, as to make him susceptible of being acted upon by stimulants: and most surely there is as much necessity for the one as the other.

Without this wise provision of the beneficent Creator, who, in all things, has an eye to the happiness and preservation of his creatures, every individual who becomes diseased, must, without the aid of medicine, undoubtedly die. It is from this principle of the human system, that all the indications of curing disease, can only with correctness be drawn; it is upon this only that the practice of medicine can be rationally founded; upon this alone can it securely stand and be sustained. It was correctly remarked by one of the fathers of the healing art, that it is only by watching nature, by what critical evacuation she cured disease, that we should be enabled to assist her in restoring health. This fundamental principle of the healing art was laid down by HIPPOCRATES, followed by SYDENHAM, and more recently, by FORDYCE in the treatment of fever.

SYDENHAM observes of HIPPOCRATES, "this sagacious observer found that nature alone terminates distempers, and works a cure with the assistance of a few simple medicines, and sometimes even without any medicines at all." These observations are founded upon facts familiar with all; as every one must know that persons oftentimes recover from slight indispositions, and sometimes even from serious ones, without the aid of any kind of medicine whatever. And this arises not from the efforts of nature, but from the effects of the disease having a certain tendency to remove the cause which produced it. And thus it is, that art steps in and assists in producing those salutary effects which the powers of life are, from some cause or other, incapable of yielding: or, by art, these effects may be accelerated, and brought about much sooner than they would be by the ordinary, unassisted operations of nature.

We may observe that nature's method of terminating a paroxysm of fever, is by perspiration; and this is an effect produced by the disease, which may be accelerated by the use of suitable medicines which act in unison with the laws of life; for both the hot and the sweating stages of fever, are the effects of those laws with which Deity has endowed our constitutions, for supplying the deficiency of living power which is the cause of fever as of all other diseases, and for removing from our systems the worn out, morbid matter retained in them in consequence of this deficiency. But we shall treat more particularly upon this subject, under the head of fever.

What is technically termed a phlegmon, a name applied to boils and other common swellings inclined to suppuration, may be noticed in illustration of the theory which we have advanced. In cases of this kind, we are often able, at the commencement of them, by promoting the natural healthy actions of the system, to disperse, or scatter them as the common phrase is. But if this

cannot be done, they will go on and suppurate, break, and discharge the matter, and heal up sound again. All this may, and often does take place, unassisted by art; but all these effects may be accelerated by the use of such means as experience has proved to be efficacious in similar cases. Thus we apply poultices, to promote suppuration; and when this has properly taken place, we employ the lancet, or some sharp instrument, to open the abscess to permit the matter or pus to make its escape. Yet all this, in most cases, would take place through the agency of that law of preservation implanted in the human system, without any aid from art. The suppuration would go on, and the abscess open, and a cure be effected without human interposition; and, therefore, to promote these effects is considered the true indication of cure, which may be accelerated by suitable means. And it ought to be considered by all rational beings, as a blessing arising from the benignant provision of our Creator, that he has not only constituted us so that our pains may be mitigated, but also provided the means of assuaging and shortening them.

We will mention one more complaint by way of illustration of the proposition that the indications of cure are, with the greatest certainty, to be drawn from nature. In consumption, the most prominent symptoms are a cough and expectoration of matter from the lungs. This is nature's method of relieving the lungs, which is the principal organ affected in this most fatal complaint; and who would think of administering such medicines, or using such means, as would be calculated directly to check this necessary evacuation? On the contrary, it is the settled practice to promote the expectoration by all suitable means.

It is not, however, pretended that we are possessed of the knowledge of pointing out by what particular means nature frees herself from all the maladies which she is subject to. Many of them are not terminated by any very marked or prominent symptom; and, in our inquiries upon this subject, we ought to use much judgment in discriminating those symptoms or effects which are really critical, from those which are merely the evidence of diseased action. Thus, the cold stage of fever, and the pain in the head and back, and the dryness of the skin attending both the cold and hot stages, are not to be regarded as critical symptoms or salutary effects; they are merely symptoms of diseased action, and the indications of cure are to use means to produce a contrary state of the system. The hot and the sweating stages, are to be considered as critical, because it is by these that we expect relief from the torpidity, coldness and oppression of the first stages of fever. And thus we might go on and multiply the distinctions between the symptoms which we have termed critical,

and those which are regarded merely as evidence of diseased action; but what we have given is sufficient.

Now it may appear from the foregoing remarks, that we disapprove of the terms, healing power of nature, and efforts of nature, because by using these expressions, we convey the idea of power and activity in a passive agent. Nevertheless, with the definition which we have given of the term nature, the terms, healing power of nature, will be in no danger of misleading the mind; and is, moreover, perhaps as near being correct as any thing in the language. But the expression, efforts of nature, seems to us so far from the facts, that it ought to be expelled from books, and something more appropriate adopted in its stead. It ought to be a rule in all science, to adopt terms which express the precise idea we wish to convey; or, if no term in the language will fully and completely do this, adopt one which comes nighest, with such qualifications as will convey the exact sense But we trust we have been actuated by other motives, than merely criticising upon language. The explanation of what we conceive to be a correct theory, is very intimately blended with whatever there may be of criticism in our remarks. And this we conceive to be of importance no further than it may be instrumental in preparing the mind to receive a more rational practice of medicine; and to do this, especially with professional men, it became necessary to improve every means in our power, for as Dr. CULLEN says, "it is well known to have happened at all times, that of the persons who apply to science, the greatest part implicitly receive the doctrines delivered by their masters; which having once imbibed, adhere to them with a degree of bigotry that opposes every attempt towards innovation and improvement."—*Professor Cullen's Treatise of the Materia Medica, vol* 1, *page* 13.

We will now take leave of this subject with remarking, that with regard to drawing the indications of cure from each particular disease, so little is known that not much reliance can be placed upon it in general, and perhaps but little ever can be, excepting in a few complaints. The general indications of cure upon which our greatest dependence must be placed, are drawn from physiological and a few pathological facts; and upon these general indications, with a few, more local ones, we rest the success of the new practice of medicine; with the firmest convictions, that in the common discretion of most families, it will be found a great blessing, and infinitely more beneficial than the old practice of mineral poisons, with all its splendid trappings of literature and science.

CHAPTER VII.

OF SOME OF THE INDICATIONS OF CURE ADOPTED BY THE MEDICAL FACULTY, IN THE TREATMENT OF DISEASE.

We have heretofore treated upon some of the particular medicines, and the effects of those medicines, commonly used by the popular practitioners of medicine; we now propose treating upon some of the indications which they consider it necessary to answer in the treatment of disease.

SECTION I.

OF VOMITING.

The indication of vomiting patients in the treatment of disease, must have presented itself to view, in the very infancy of medicine. The sudden and sensible relief no doubt often obtained from spontaneous vomiting, could not have failed to arrest the attention of the early inhabitants of the world, and draw them to seek the means of producing it artificially, so soon as they paid the least attention whatever to medicine of any kind.

With regard to the utility of vomiting, there is, perhaps little difference in opinion amongst physicians; some, however, approving of recourse to it much oftener than others. But, generally, medical writers are more consistent with each other with regard to vomiting, than almost any other indication of cure whatever. And this we consider of some authority, however little we may respect their views in some other particulars. Vomiting, we are satisfied, is a true indication of cure, in most complaints; but the articles commonly made use of by the faculty, we disapprove of, for reasons which have been stated in a former chapter.

Dr. Cullen remarks, that "when the contents of the stomach may be supposed to be in a morbid state, and noxious to the stomach itself, or to the whole system, there can be no question or doubt about the propriety of vomiting, except in a few cases," &c.

Now we are convinced there are but few cases of disease, of a serious nature, and probably not any, in which the contents of the stomach do not become vitiated, and therefore, noxious to the whole system. The much celebrated John Hunter observed, that the stomach was the centre of sympathy; to which proposition all physiologists since his time have subscribed their assent. It is from the stomach that the whole system receives the supply of nourishment which is derived from food and drink; from which circumstance, an intimate connection and association of feeling might be expected to exist between this organ and all other parts of the system. Now, as every part of the system is liable to be-

come diseased, or incapable of performing its healthy functions, it thereby becomes disqualified for receiving and appropriating to its legitimate use, its proper proportion of nourishment; and hence it would seem necessary that the stomach should be as it were apprized of this state of the organ, so that the diseased part need not be overburthened with food or nutriment which it could not dispose of. This provision seems to be made in the intimate sympathy which is acknowledged to subsist between the stomach and all other parts of the system. The announcement, to the stomach of disease in some remote organ, and its consequent refusal to receive food, might also be accounted for in another way; and the association of sympathy might also take place from the same cause; that is, that diseased action taking place in an organ remote from the stomach, would be communicated to the next, and so on until it reached this organ. But this reasoning seems to be completely set aside by the common fact, that a severe hurt of some remote part will often produce sickness at the stomach, and sometimes vomiting; and on the other hand, extreme nausea destroys the muscular powers, as a person suffering from this cause is often, though otherwise in good health, scarcely able to move or stand.

There is also another intimate association of sympathies, of which the stomach is the centre, in the organs of digestion. There is no function performed in the system in which so many organs are concerned as in the process of preparing our food for yielding its nutricious particles to the blood. Hence it would seem necessary, that a common sympathy should exist amongst them; and the stomach and next intestine to it, being the focus to which the energies of all the rest are directed, seem to constitute it the centre of an organic sympathy, different from the common sympathies existing between that and every part of the system in common with the organs of digestion.

From the acknowledged fact, that the stomach is the grand centre of sympathy, as well as from the arguments adduced in illustration thereof, we infer that no bad case of disease can occur without causing such an unhealthy tone of the stomach as to vitiate its contents, and render them noxious to the whole system. We are, therefore, constrained to the conclusion, that vomiting is indicated in every disease of violent symptoms, or of an obstinate nature, to which the human frame is liable. Upon the same principle, vomiting ought to be often repeated, until a healthy action is so far restored that the stomach is capable of performing its proper functions; because, until then, its contents must be continually becoming vitiated and noxious to the system, as our own experience has repeatedly confirmed was a fact. And whoever has vomited a patient six or eight times in the same number, or twice the number of days, and seen foul matter of nearly the same

appearance discharged at each vomiting, as we have done, and repeated this process on many different patients with the same appearance and a good effect, will, with us, we think, conclude, that vomiting is indicated in all bad diseases, and ought to be repeated until a healthy action is restored to the system.

Medical writers disapprove of the frequent administration of emetics, because it "weakens the tone of the stomach." This is undoubtedly the case with such unnatural medicines as are in common use; but with such as act in harmony with the laws of life, as we conceive the lobelia does, nothing of this is to be apprehended. This article may be given for many days in succession, or two or three times a week, for many weeks, to produce vomiting, with a continual improvement of the health, and of the stomach in particular, as we can testify from our own practical experience and observation.

An idea seems to have obtained very extensive credence in the world, that vomiting is of but little utility if bile be not largely thrown off. This, however, like many other propositions in the healing art, is, as we conceive, very erroneous. It is a common notion with people generally, and so far as we know with physicians from whom the people imbibe their ideas, that bile, in most complaints, accumulates in the stomach, acting as a cause of disease, and must be removed in order to lay the foundation for a cure. Hence it is very naturally concluded, that unless an emetic throws off bile in large quantities, it does little or no good. We are convinced, however, from experience and observation, that the removal or rather ejection of bile is not often necessary or even healthful.

Dr. CULLEN remarks that emetics not only evacuate the stomach, but that "the duodenum with a portion of the jejunum, may be, and commonly is, evacuated at the same time." Hence, as the bile is poured from the gall-bladder into the duodenum, we may readily account for the common occurrence of vomiting bile. But Dr. CULLEN goes further and says, it is probable that it is brought not only from the duodenum, but "even from the gall-bladder and biliary ducts." It may be further remarked, that a valve is placed at the pylorus or outlet of the stomach, for the purpose of preventing the return of whatever passes from it into the intestines; and it cannot therefore be supposed that the bile could force this valve and pass into the stomach, without some violent convulsion forcing it open. And such violent convulsion, we believe, generally results from the use of tartar emetic, and other more powerful emetics which are often used by the medical faculty.

We conceive that an emetic which acts in unison with the laws of nature, as all medicines ought to do, will very rarely produce an evacuation of bile. Such circumstance will only occur in cases where there is an increased morbid secretion of this fluid, which will be found to take place far more seldom than at present is

imagined; and when it does, cannot in our opinion, be considered so much the cause, as the effect of disease. But whenever an increased secretion of bile does take place, and as a necessary consequence, an unusually large quantity of it poured into the duodenum, the operation of an emetic acting in harmony with the laws of life might, by the inversion of the peristaltic motion which it produces, with the large quantity of bile pressing against the valve, force it open, and thus produce a discharge of bile, as indeed is sometimes the case in spontaneous vomitings. But we consider it an evidence, when bile is generally in all cases thrown out by the operation of an emetic, that that emetic acts contrary to the laws of nature or animal life. Nothing, and especially the animal fluids, ought ever to be ejected from the system, until it has performed the office which nature designed it should, except it has become unfit to perform that office; and in that case, nature, or rather the powers of the system, ought to be the judge, and point to it by some unerring indication before an officious interference of art is attempted. And even then we must follow precisely the course of nature, removing the morbid matter through the same channels that she does; as man is so constituted that the regular operations of the system, both in health and disease, can no more be thwarted or turned out of their course with impunity, than can the regular operations of the nicest machinery be perverted, or made to retrograde, without doing it a serious injury.

The simple action of vomiting, independent of any effect which the emetic may produce upon the system, has been supposed, by some physicians, to be useful to health, "by its exciting the activity of the stomach itself, and by agitating, as vomiting does, the whole body." But although vomiting may be useful in this way in some degree, yet its principal good effects must be considered as arising from its cleansing the stomach of foul matter, and from its universal stimulant effect over the whole system. This last is especially the case in using the lobelia and some other vegetable emetics. Even in hæmorrhagies, and particularly in bleeding at the lungs, vomiting has been recommended and used with success.*

But it remains yet to be pointed out the superiority of emetics over cathartics in the medical treatment of disease; or in other words, that the indications of cure more generally require emetics than cathartics, and ought, therefore, more often to be used. We are well aware that this proposition is at variance with the received opinion of medical men; but, nevertheless, we are well satisfied of its truth, and trust that we shall be able to bring such facts and arguments as will go far towards convincing others of the correctness of these views.

It may be remembered, that the stomach, although the process of digestion is in part performed there, acts principally as a recep-

* See Dr. Cullen's Materia Medica, vol. II, pages 328, 329, Phila. ed. 1812.

tacle of the food, which, whilst it remains there, gives out none of its nutritious particles for the support of the body. It is true, that food, almost as soon as received into the stomach of a very hungry person, imparts a stimulus to the whole system; but this effect, it is conceived, arises in part from the immediate stimulus which the stomach receives from the food; which is communicated to the other parts of the system by sympathy, in a very short time, as we have previously pointed out how the intimate association of feeling existed between the stomach and all other parts of the system. But it is in the intestines that the most important part of digestion is performed, and in them the nutritious particles are separated from the grosser part of the food, and thence poured into the blood-vessels which distribute them to every part of the body. Now it must be evident, with but little reflection, that if the stomach contains any foul, noxious, or morbid matter, as it undoubtedly does in most or all cases of severe illness, the carrying of this down through the intestines, where it becomes exposed to absorption by the lacteals along with whatever of nourishment may be there, would, in all probability, be productive of baneful consequences to the already weakened and diseased system. The morbid matter passing from the stomach through the intestines, as it undoubtedly must, if not thrown off by vomiting, and being thrown into the blood, must certainly have a powerful tendency to poison the whole mass of fluids, and thus destroy the peculiar organization which is necessary to continue life. For however the humeral pathology may, at this day, be considered as exploded, it is a self-evident fact, that the fluids hold a predominant influence over the solids; and those who look for the cause of disease solely in the derangement or organic lesion of the solids, may expect disappointment.

Taking it for granted, that a principal or important use of the stomach is a receptacle of the food, whence it is given out to the intestines after being suitably prepared; and that the nutritious part of the food is not given out at all from the stomach to the blood; and further, that nature herself is often so acted upon by noxious matter formed or received into the stomach, as to eject it spontaneously to prevent its passing down through the intestines and there being absorbed and scattered like wildfire through the system; and when to all this we add the debilitating effects of all the cathartics principally depended upon by the faculty in violent cases, the conclusion seems almost irresistible that emetics are oftener indicated and of course ought more often to be used than cathartics.

Vomiting, when produced by proper emetics, especially with the preparations of lobelia, not only cleanses the stomach of whatever may be useless or noxious, and little if any thing more, but it also does it without producing the permanent prostration of strength

uniformly following the use of active purgatives. And to husband the strength of the sick, not only by not using such medicines as have a direct and manifest tendency to weaken the powers of life, but also by the use of such medicines as have the power of restoring the already lost strength of the system, ought to be a rule never to be lost sight of in the practice of medicine, and cannot be too often repeated nor too strongly enforced.

SECTION II.

OF PURGING.

Although purging is sometimes indicated in the treatment of disease, it is not near so uniform, nor is it so readily to be distinguished as the indication of vomiting; and from this circumstance, together with its often decided injurious effects in many cases, it ought, as a general rule, to be but seldom resorted to. The dangerous consequences of the indiscriminate use of cathartics has, within a few years, become more apparent perhaps, than at former periods; though its debilitating effects have always been known and acknowledged.

"The administration of cathartics is rendered improper by inflammation of the stomach or intestines, or tendency to it; and by much debility." Purging, next to bleeding, reduces the powers of life more suddenly and permanently than does the fulfilment of any other indication which the fashionable practice of medicine imposes upon its subjects. Instances sometimes occur in which the administration of an active purgative has produced such a prostration of the living powers, that death soon ensued, evidently more in consequence of the debility thus induced, than from the effect of the disease alone. This was the case in an eminent degree, in the spotted fever, so called, or cold plague which ravaged many parts of the United States with such frightful mortality, at different periods, some years since.

A writer upon this fatal disease (Dr. Henry Fish) remarks in regard to opening the bowels, that "to effect this, an enema, (clyster) was preferable to a cathartic, for it induced less debility, and its operation was more under control." "It was not intended to procure more than one evacuation; and in some cases, so great a prostration followed this, that the patient was with much difficulty recovered from it." It must be noted, however, that the clysters were not administered until after *small doses of calomel* had been repeated for twelve or fourteen hours.

"Cathartics, especially the more powerful ones, require to be administered with caution, even in diseases where they are indicated by peculiar circumstances, particularly any tendency to inflammation or extreme debility; also during pregnancy, imme-

diately after delivery, during the flow of the menses, and in those liable to hæmorrhoidal affections." "The too frequent use of them induces wasting of the body, and sometimes renders the intestines morbidly irritable, so that purging is easily excited, while in other habits it renders them more torpid, and induces costiveness."*

We are satisfied from reasoning and observation, that stimulating any of the organs or sets of organs of the animal system, beyond the ordinary bounds affixed by the natural stamina of the system, has a direct and invariable tendency to injure the healthy tone of the organ or organs thus subjected to this over or unnatural excitement: and by thus debilitating one or more organs, rendering them incapable of properly performing their functions, the whole system must sooner or later also suffer, in consequence thereof.—Thus, when the intestines are repeatedly stimulated by active purgatives, they lose their tone, so that they either become "morbidly irritable" or "torpid;" and, hence, incapable of properly performing their healthy functions. And it is an incontrovertible rule, that if a certain number of purgings produce any given degree of this irritability or torpidity, then half that number will do its proportion; probably however, not its mean arithmetical proportion, for it is most likely that each successive purging produces an increased bad effect over the one which immediately preceded it, throughout the whole series necessary to produce the given degree of irritability or torpidity. And so it must follow, that one purging must have its bad effect, proportionally less, however, than any of those which immediately follow in the series.

It will be readily understood, we suppose, that our remarks on purging are general, and apply only to the cathartics in common use, and of those more particularly to such as are active or drastic in their operation, because their certain effect upon the human system is to prostrate its power. Could any thing be discovered which would act as a purgative without weakening the powers of life, or injuring the tone of the intestines, its exhibition would much more often be admissable than any of the purgatives now in common use. And considering the goodness of Deity in providing for all our wants in the most exhuberant manner whilst in a state of health, how can we but believe that he has been as provident for us in sickness; and in the rich stores of nature furnished something to relieve every ill to which human nature is liable.—We have the authorlty of the eminent Dr. Rush for this sentiment, and we are firmly convinced of its truth.

"After bewailing the defects and disasters of medical science, Dr. Rush consoled himself with the animating prospects of that hope, which he often proclaimed from his desk, that the day would arrive, when medical knowledge should have attained to that anex

*Thacher's Dispensatory, pages 101—2.

of perfection, that it would be able to remove all the diseases of man; and leave not for life a single outlet, a single door of retreat, but old age; for such is my confidence, said he, in the benevolence, of Deity, that he has placed on earth remedies for all the maladies of man. I remember still, with a thrill of love and gratitude, to that admired and venerable professor, with what enthusiasm and transport, and prophetic vehemence, he used to pronounce that sentiment at the close of his lectures."*

The new French schools of medicine, seem to have fully espoused the doctrine that purgative medicines ought to be expunged from medical practice. "None but blind humorists could have established those barbarous indications consisting in the expulsion of bile, mucous, saburrhal obstructions, and other matter by which they thought the body infected, without examining the condition of the viscera, or considering that the tissues, whose action is impaired, should alone be attended to. Let candid physicians compare the results of this (the new French) method in the various kinds of *gastro-enteritis*,† with those obtained by that perturbating, incendiary, or evacuating treatment so generally employed in fevers, and let them decide. It is at the bed side that the physiological doctrine is most constantly triumphant."‡ In another place, the same author, in apparent reference to the use of purges in fever, calls them "sanguinary remedies," "keeping up or exasperating the disease, at the same time that" the physician "was attempting to supply nature with the means of returning victorious from a conflict in which she experienced a greater resistance from the treatment than from the disease."‖

We are of the opinion, however, after all that has been or can be said with regard to the injurious consequences resulting from the use of purgatives, that a large portion of the evils have arisen from the use of improper medicines; and we are not aware that any discovery has yet been made of a cathartic which is known to act in harmony with the laws of life. Should any one be fortunate enough to detect such a remedy, and communicate it to the world, he will deserve the lasting gratitude of the human family.

The common practice of exhibiting purgative medicines as a remedy for costiveness is highly reprehensible. The cause of this difficulty is a loss of tone in the intestines. and, as has previously been shown, the frequently repeated use of such medicines increases the difficulty, or it may eventually produce the opposite state, of morbid irritability. The true indication in constipation of the bowels is the use of stimulating bitter and laxative tonics.

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*Robinson—Lecture 1.

†The new French name for fever; or rather the local disease which they suppose is the cause of fever

‡Begin's Therapeutics, page 183. ‖Ibid, p. 23, 24.

The only case in which we conceive purgative medicines are very obviously indicated is in a common looseness of the bowels or diarrhœa, and in most cases of spontaneous purgings. But even these have been and can be, no doubt, cured again and again, by the use of general stimulants, such as cayenne, alone, or combined with astringent tonics, with the happiest effect. We have the authority of Dr. CULLEN* for believing that purgatives produce an afflux of the blood to the internal parts, thus drawing the determining powers inward, and checking perspiration. If this be the fact, it is evident that the use of purgative medicines must be injurious in many cases of disease; and in fevers might even justify the strong language of BEGIN which we have quoted in this chapter.

There is another objection to the use of purgatives, connected with their debilitating effects, worthy of being noticed. The operation of cathartics it is said "extends to the whole length of the alimentary canal, from the upper orifice of the stomach to the lower extremity of the rectum," and consequently serve to evacuate the stomach."† If this be true, what could be anticipated from purging but pernicious consequences to the system already laboring under debility and the effects of a retention of the worn-out matter retained in consequence of checked perspiration, which attends the greater number of diseases, and particularly those in which purgatives are most frequently administered? The noxious matter, which, it has been shown, more or less, exists in the stomach, in most cases of disease, is carried by purgatives down through the intestines, and exposed to the action of the lacteal absorbents, which take it up and transfer it to the blood-vessels, whence it is thrown upon every part of the economy to poison and deprave it. And if there be any wholesome food in the stomach, this is as likely as the noxious matter to be carried out before it is suitably prepared, and being hurried on through the intestines, cannot afford that nourishment which it ought to; and moreover debilitates and weakens the tone of the stomach by thus prematurely hurrying out its contents.

The contents of the intestines are also hurried off in the same premature manner, not allowing time for the lacteals to absorb all the nutritious or stimulating particles from the matter destined to be submitted to their action. The sudden removal of so much matter from the intestines as is often removed by powerful purges, produces much debility merely by the loss of so much bulk. The mere bulk of the intestinal matter by keeping the intestines properly extended, seems to be of much importance in the animal economy

*Materia Medica, vol 2, pages 349—'50.
†Cullen's Materia Medica, vol. 2, pages 345—'46.

in some way or other. A modern writer* advises persons laboring under severe diarrhœa to be careful not to encourage or allow of too great discharges at one time, as fatal consequences have resulted in such cases from the want of proper care.

Thus we may see that every effect produced immediately upon the intestinal canal by purges is productive of injury; and therefore their use ought, as a general rule, to be dispensed with. A natural action of the intestines is what is wanted, which may generally be procured by the use of general stimulants and tonics, and by the aid of injections or clysters, of which more will be said hereafter.

SECTION III.

OF BLEEDING.

Blood letting is resorted to for the purpose of reducing the quantity of blood, and removing inflammation. It has also been supposed by the vulgar and countenanced, if not believed in, by enlightened physicians, that blood letting was indicated by a vitiated state of the blood, and that the *bad* blood could be drawn out by bleeding, and the *good* left in the veins. We cannot attach importance enough to such an idea, however, to take the trouble to confute it.

The custom of blood letting has long been used in medical practice; and, although it has often been the means of removing the acute pain attending violent inflammation, as in pleurisy, yet it is sure to produce permanent debility from which the patient slowly recovers; and many instances are known and recorded in which very alarming and even fatal consequences have ensued, either immediately or within a few hours or days. There are no means used for the cure or alleviation of disease, by which the vital powers can be so suddenly or permanently reduced as by bleeding; and consequently, none by which so much mischief is likely to be done. It has been asserted, by a late writer, that, during a certain period, more persons perished by the lancet, than by "war, pestilence and famine." Even Dr. Rush, who might be considered an honor and an ornament to any country or age, has been accused, and no doubt justly, with destroying his patients by the pernicious practice of blood letting. His practice in yellow fever, which was severe purging and copious blood letting, it was declared by Dr. Currie, could "not fail of causing death!" Indeed, the certain tendency of blood letting, according to the new physiological theory, must be to assist disease to accelerate the fatal period, because it prostrates the living powers. The blood is the vital stream whence the whole animal system is nourished and sustained, in disease as

*Ewell.

well as health; and in proportion to the reduction of its quantity must be its morbid effects upon the system, and its debilitating influence over the vital functions.

The knowledge of these physiological facts must unhesitatingly lead us *a priora* to detest the "incendiary" practice, so universally adopted, of wasting the vital fluid in all cases of inflammation, and in many cases of fever. Such practice can only be tolerated in the absence of the knowledge of more rational and better means; but the ignorance which leads to such a suicidal course—a course so contrary to the best established principles of phisiology, ought to receive no kind of countenance, respect, or toleration from enlightened men.

"The question of the morbid effects of the loss of blood appears to me not to have sufficiently engaged the attention either of the physiologist or practical physician; yet to both they offer objects of inquiry of great interest and importance."* The work from which this quotation is made, is probably the first ever published principally devoted to this important part of medical practice; and the accurate details of a variety of cases, and the relation of many disastrous consequences resultiug from blood letting, very clearly evince the author's close attention to the high importance of the subject. It is a work which could not fail to be interesting to every medical practitioner, and especially to such as are in the habit of indiscriminate repeated bleedings.

Our author, in speaking of the remote morbid effects of loss of blood, says, "of the more obvious and striking effects of loss of blood, or those of reaction, are such as to suggest the idea of increased power and energy of the system, and of increased action of its organs. and to lead to an erroneous and dangerous employment or repetition of the lancet, when a directly opposite mode of treatment is required: while the state of actual but protracted sinking frequently resembles a state of oppression of the brain, or of congestion of the lungs, so accurately, as to prompt the unwary practitioner to a still more suddenly fatal use of the lancet."—*page* 12. Again he observes; "That the effects do not correspond with the measure, or even a comparative measure, of loss of blood in different subjects. Sometimes there is no reaction. At other times the reaction is excessive and even violent. In a third instance we may be surprized by the sudden accession of a sinking state, or even of the symptoms of immediate dissolution."—*page* 13.

These observations of Dr. Hall are but the fatal premonitions of the disastrous effects of the lancet in the most experienced hands. The aggregate amount of mischief which has arisen from this pernicious practice in the hands of all who have been dabbling with it, is, and must forever remain beyond the reach of human calculation.

* Researches principally relative to the morbid and curative effects of loss of blood; by Marshall Hall, M. D. page 11.

The immediate effects of the loss of blood, as stated by Dr. HALL, are syncope, convulsions, delirium, coma, and sudden dissolution.

Cases of syncope or fainting from loss of blood, are familiar to every one who has often witnessed the operation of blood letting. "From this state the system usually recovers itself spontaneously, if the cause by which the syncope was induced, be discontinued. The principle by means of which this recovery is effected, may, without involving any hypothesis, be denominated reaction."*

Convulsions stand next after fainting in frequency of recurrence, "and is most apt to occur in children, and in cases of the slow and excessive detraction of blood."* "A physician aged thirty-four, became affected with inflammation of the larynx. He was bled freely on two successive mornings at his own instance. In the afternoon of the second day, the disease being unsubdued, he was bled a third time, placed in a rather inclined position upon a sofa. The blood was allowed to flow until thirty-four ounces were taken. He then suddenly fell upon the floor violently convulsed; and he remained for some time afterwards in such a state of syncope as to render his recovery very doubtful; being carried to bed, however, and cordials being administered, he slowly recovered."— "A very intelligent surgeon in the neighborhood of London, in bleeding a clergyman to the extent of twenty ounces, whose idiosyncrasy in this respect was not known, was compelled to remain with him during the whole of that day; and notwithstanding frequent recourse to brandy, continued long apprehensive for the patient's life."†

"Delirium occurs as an immediate, as mania occurs as a more remote, effect of loss of blood.

"A young man, aged thirty, had lost much blood from the arm and by leeches, and under the influence of a brisk purgative, fell into complete syncope; instead of laying him recumbent, his ignorant friends kept him in the erect position during an hour and a half, and thus protracted the state of deliquium during the whole of this period. He was found perfectly colorless and senseless, and affected with rattling in the breathing. Being laid down, he made a convulsive effort to expectorate, and the blood rushed into his cheeks; in half an hour he began to recover, opened his eyes, and complained of deafness; the pulse was frequent. The rattling gradually subsided, and he gained a degree of warmth under the influence of brandy and fomentations.

"To these phenomena succeeded severe rigor, followed by great heat of skin, constant delirium, with continued though diminished

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* Loss of Blood, page 17. † Loss of Blood, page 18.

‡ It ought to be borne in mind in all cases where loss of blood produces any unpleasant or alarming symptom, that the patient should be laid immediately in a horizontal position.

deafness. The delirium did not cease during the night. On the following morning it was only occasional, and the deafness slight. This state was followed by numbness of the feet and legs, and great fear of choaking on going to sleep. The patient gradually recovered.

"Another patient fell and hurt his back. On three successive days he was freely bled from the arm and by cupping, and purged. On the evening of the third day he was again bled. This was followed by faintness, sickness and retching, and much affection of the head.

"I saw this patient very early on the following morning. There was great pallor, tinnitus aurium, with intolerance of noises, and of light, and sighing breathing. To these symptoms succeeded great hurry and alarm of mind, with extraordinary noises and visions, delirium, weeping, and sighing. At length continued delirium supervened, and finally wore out the patient."*

"It is important to remark, that delirium may occur even from the loss of a very small quantity of blood, in those cases in which there is what I have ventured to term an intolerance of loss of blood; or in other words, great susceptibility to its effects."†

With regard to a state of coma or lethargic drowsiness, Dr. HALL remarks, "We may be called to patients so perfectly comatose, immediately after blood letting or hæmorrhage, that we may be in doubt for a time whether the case be not apoplexy."‡

A state of coma or sleepiness is peculiar to children, and, according to Dr. HALL, may arise not only from the exhaustion attendant on blood-letting, but from exhaustion occasioned by other means, and particularly purging, and often from spontaneous diarrhœa. In remarks upon the use of blood-letting, in the treatment of the diseases of infancy and childhood, Dr. HALL says, "This tender age is far more liable than later years, both to the insidious, and the sudden, fatal effects of loss of blood; it therefore requires to be viewed with still greater care and watchfulness."‖

Of cases of sudden dissolution from the loss of blood, Dr. HALL gives a number of instances, in different parts of his interesting work. He copies from the London Lancet, vol. xi. p. 94, the case of a man who had fallen from a scaffold, and received an injury about the thorax. As this case is too lengthy for insertion verbatim in this work, we will abridge it by confining ourselves to the most important particulars and the final result.

This patient, immediately on entering the hospital, was bled to eighteen ounces, and at noon of the same day lost twenty ounces more, which gave him relief; the blood exhibiting a decidedly inflammatory character. Next morning, having passed an indifferent night, and the pulse quick, he again lost eighteen ounces of blood,

* Loss of Blood, pages 19–20.
† Loss of Blood, pages 20, 21. ‡ Ibid, page 22. ‖ Ibid, page 166.

which was again repeated, in similar quantities, at noon and night. The blood drawn this day had not the slightest appearance of inflammation.

The following morning he appeared much better; talked cheerfully with a friend, and expressed himself free from pain. The pulse was small and jerking, but very compressible. In this situation, the patient was ordered to lose eighteen ounces more of the vital fluid, from the supposition that the state of the pulse indicated inflammation, instead of resulting from the exhaustion of repeated bleedings. "The dresser, however, perceiving what effect even the loss of a few ounces had, desisted from drawing any more. About two hours subsequently, Mr. LAWRENCE saw the patient, and concurred with Mr. LLOYD, as to the propriety of the further abstraction of blood; they therefore directed twenty ounces more to be drawn. The pulse after this time became a mere flutter, and the man only survived a few hours!"*

Dr. HALL gives many other cases of dissolution, evidently from exhaustion by blood letting, but we will let this one suffice, and close the dark catalogue of the work of death from this incendiary practice. Other similar cases might be added from other sources, and there is no doubt that most physicians of extensive business who have addicted themselves to this fatal practice, might, after reading Dr. HALL, call to mind cases in which they had evidently contributed to the work of devastation and death; though at the time, they might have been perfectly unconscious of contributing to such fatal result.

When we take a physiological and pathological view of the blood, we shall certainly be astonished that more lives than is apparent, have not been lost by blood letting.

We have elsewhere noticed the fact, familiar to every physiological student, that the blood is the medium through which the system receives all its nourishment; and, indeed, the whole vital power is undoubtedly concentrated in this fluid. After it has received the nutricious parts of our food from the stomach, and the stimulant principle from the air in the lungs, it traverses the whole body, for the purpose of supplying to all parts the portion of nourishment and stimulus necessary for promoting the functions of life. This distribution of nutriment and stimulus is more necessary in disease than in health; because disease is the result of a deficiency of the vital power, and which, when uninterrupted, keeps all the organs in vigorous action and healthy tone. Moreover, it yet remains to be proved, that nature produces an exuberance of the purple flood any more than of flesh or muscle, even in the best state of health; and in disease, there are certainly fewer materials to form an exuberance of blood from, or even to furnish a requisite supply for the ordinary purposes of life.

* Loss of Blood, page 24.

How injurious then must it be to the system, already suffering from the abstraction of vital stimulus, to abridge the very means which are provided to replenish and sustain its wants, by wantonly wasting the vital fluid? By diminishing the quantity of blood, the whole system, even the minutest fibre, suffers a diminution of nutrition and vital power. Even the mental energies must suffer, because the mental organs, in common with all others, are sustained from the same source. We do not mean that our minds or ideas are made from the blood, but the mental organs, by means of the blood, are kept in a situation to receive proper impressions, and the modifying, comparing and perfecting these impressions, wears out the excitability of these organs, as constant motion wears out the excitability of the muscles, and can only be restored through the agency of the blood.

It may be said that plethora and inflammation furnish pathological facts capable of overturning all the theoretical reasoning which has been or can be advanced. We are well aware that theory must always yield when it comes in conflict with experimental facts. But we are equally well aware, that even experimental facts, when under the influence of a false theory, have often made wrong impressions upon the mind, and led to a corresponding error in practice. Thus we see in cases of plethora or apparent fullness of blood, that the abstraction of a part of it appears to afford relief; but at the same time generally a degree of permanent debility; and in some instances has produced death. In inflammation too, bleeding often affords relief to the most urgent symptoms of pain; but in this, as in plethora, permanent debility is induced; and in some cases repeated bleedings which appear necessary to subdue the violent symptoms, terminate in death. Instances of this kind might be multiplied.

Both these states of the system may be relieved and cured by a simple process, with perfect safety and far more certainty, by the most simple means, and in harmony with the laws of nature.—These means will be noticed particularly hereafter.

It has been urged in favor of blood letting, that it is indicated by the natural operations of the system. But admitting this reasoning with all the force that can consistently be attached to it, and it argues nothing in favor of using the lancet. We allude to bleeding at the nose, which often relieves the headache. Epistaxis or bleeding at the nose, is principally, if not wholly, caused by an over determination of blood to the head, and is produced mechanically, by inordinate pressure upon the tender fibres of the vessels, causing them to burst. But this mechanical force rupturing the vessels and giving vent to the restrained fluids cannot be considered as harmonizing with the laws of nature, because these never exert mechanical violence, sufficient to injure the most delicate fibre or excite the most susceptible nerve. If the practice of blood let-

ting received any countenance from spontaneous hæmorrhage from the nose, bleeding only ought to be encouraged from that organ, and in such complaints as bleeding from the nose relieves. But even spontaneous bleeding from the nose, if of frequent recurrence in the same subject, ultimately induces a weakly state of body.

SECTION IV.

OF BLISTERING.

The application of epispastics or blistering plasters it is considered is indicated in many cases of pain and inflammation, and, in fevers of the typhoid type, to "communicate a stimulus to the whole system, and raise the vigor of the circulation."*

The most common article in use for producing a blistered surface, is the powder of the cantharis, or blistering fly. There is no doubt that the application of blistering plasters often removes pain and inflammation, and may also affect the general circulation; but this may be done as well without producing a blister as with, and save all the painful and disagreeable consequences of the ulcer which succeeds a blister The principle upon which this relief is produced seems not to be well understood, it being attributed to the pain it excites in one case, and the inducing a different kind of action in the other; in the one case removing pain, and in the other, morbid action or inflammation.

The facts are, that in all cases of pain and inflammation, or of any other case in which blisters afford relief, there is a want of sufficient action in the vessels of the affected part. Pain, we conconsider in all cases, an evidence of obstruction, and is always an attendant upon active inflammation. The obstruction to the free passage of the fluids through the vessels, is what causes the pain. Now how the "exciting one pain" or *obstruction* can "relieve another,"† seems to be beyond the reach of philosophy to comprehend or account for satisfactorily. The only thing that approximates towards satisfying our minds, is to suppose the flies to act as a stimulus which removes the obstruction that causes the pain and inflammation; whilst the pain and inflammation caused by the flies is to be considered as arising from the too great stimulant power of the flies, or their stimulating in an unnatural manner. Because whatever stimulates the system, either generally or partially, in unison with the laws of nature, will not produce blisters.

*Hooper's Dictionary.
†Thacher's Dispensatory, page 109.

The good effects of errhines* consist, it is supposed, in the abstraction of fluids from the head, which relieve rheumatic affections, and other pains of the head. If this theory be correct, it will serve to illustrate what we have advanced with regard to the mode in which the local application of stimulants relieve pain and inflammation. The evacuation of fluid produced by a blister, it is agreed upon all hands, is too inconsiderable to have any influence in removing disease.

It must, therefore, do it by removing the obstruction which causes the pain and inflammation. Hence it may be inferred, that diminishing the quantity of fluid by the use of errhines, is equivalent to removing an obstruction by stimuli. Pain, according to our theory, is caused by any obstruction to the passage of the fluids through the painful part; hence it will readily be understood how a lessening of the quantity of the fluid may afford a relief from pain.

All the good effects of blistering may, in general, be produced by the application of a strong preparation of vinegar or brandy, and cayenne pepper, without the protracted painful consequences and ulceration attendant upon blisters. The cayenne is a most powerful stimulant, producing a very sensible pungent effect wherever applied to the skin; and, so far as our own experience goes, always affords relief in cases where we had reason to expect blisters could have been useful.

Thus, we think, it is manifest, that it is not by "inducing an action of a different kind in the same or a neighboring part," that a morbid action is corrected; nor does the "exciting one pain" ever "relieve another;" but it is, we confidently affirm, by removing obstruction, and restoring a healthy action, and in this way alone, that pain and morbid action are ever removed. It is true, that where a morbid action exists, the inducing of a different action, provided that action be a healthy one, is undoubtedly a correct idea; but this does not seem to be the principle upon which it is supposed blisters operate.

The practice of producing blisters with the Spanish flies is objectionable on other accounts besides the protracted soreness which they produce. Their use "is often followed by a strangury, accompanied with thirst and feverish heat."†

Dr. Hillary, an English physician, is not so modest as Dr. Thacher, in his remarks on the effects of cantharides, or Spanish flies as they are more commonly denominated. He says, "I have long observed that blisters are too frequently, and too often improperly used, as they are now so much in fashion. It is very probable, that we have no one remedy in all the materia medica, that is so frequently abused, and so often improperly applied, not

*Medicines which produce a discharge from the nostrils; such as snuff, &c.
†Thacher's Dispensatory, page 284.

only in too many cases, where they cannot possibly give any relief, but too often where they must unavoidably increase the very evil which they are intended to remove or relieve. How often do we see them applied, and sometimes several of them, by pretended dabblers in physic, not only where there are no indications for applying them, but where the true indications are against their application; as, in the beginning of most fevers, and especially those of the inflammatory, and of the putrid kind, where, in the first, the stimulus and the momentum of the blood, which were too great before, and so render the fever inflammatory, and all its symptoms worse.

"And it is well known that the cantharides contain a great quantity of alkaline, semi-volatile salts, which pass into the blood, though they are applied externally; and attenuate, dissolve, and hasten and increase its putrefaction, which is also confirmed by the putrid alkaline acrimony which they produce in the urine, with the heat and stranguary, which it gives to the urinary passage."

SECTION V.

OF STARVING.

The practice of starving is very common to most classes of physicians, but it is most peculiar to the new French school of medicine. In some severe cases, they push the fulfilment of this indication to its utmost limit; stopping only at the confines of starvation. "The first indication," says Begin, "in acute or chronic gastritis, [which term he appears to use as he does gastro-enteritis, as synonymous with fever] is abstinence." And, "in many cases, the physician is placed between the fear of exasperating the disease by allowing food, and the danger of causing, by a longer abstinence, the stomach to become irritated by a continued absence of the materials it requires." "The call of the patient cannot be a safe guide for the physician."*

The fashionable mode of treating disease by the administration of such remedies as are hostile to the laws of animal life, as we have shown that the greater number, upon which physicians of the old school place their principal dependence, do, no doubt render it improper to take food; although the appetite of the famishing patient might even require it. The hostile remedies, perverting the very order which they are intended to restore, make it improper to gratify the calls of nature, because, in this perverted order of the vital laws, the organs are not in in a state or capacity

*Begin's Therapeutics, vol. 1, pages 172—'73.

to properly manufacture and appropriate to their legitimate purpose the materials which exhausted nature craves.

But when the system is under the influence of remedies which act in harmony with the laws of animal life—remedies which are hostile to disease and death, and which are calculated to restore to harmony that discord of the animal functions which is the cause of all disease, we say, when the human system is under the influence of such remedies as these, the calls of nature for food and drink ought always to be gratified. True, a factitious appetite may occur, which may need restraining; or, as is sometimes, indeed often, the case, during convalescence from fever, and other acute diseases, the appetite becomes too strong for the impaired tone of the organs; but who is there so deficient in judgment that cannot, with a little reflection, regulate the quantity to suit the tone of the stomach?

The desire for food and drink, being the result of that instinctive feeling, common to the whole animal creation, by which the individual is preserved, ought always to be gratified; taking special care, however, to distinguish between the morbidly insatiable appetite which is sometimes met with in some complaints, or the too greedy one of convalescents, and the natural calls of the living powers for something to sustain their operations.

SECTION VI.

OF REFRIGERATION.

Refrigerants are such medicines as allay the heat of the body and blood: hence refrigeration is the action of those medicines upon the system in allaying the heat.

Refrigerants are supposed to be indicated in "synocha and other inflammatory affections, and likewise in fevers of the typhoid type." The vegetable acids constitute the principal refrigerants, and are, no doubt, very admissible diluted with water, to quench thirst in most if not all febrile affections. The neutral salts form the remaining division of refrigerants, of which nitre is the principal article in common use.

The manner in which nitre produces its cooling effects upon the system seems not to be well understood; but that it does produce such effects there is no doubt. The presumption is, that it does it by checking the production of heat in the animal system. This idea is corroborated by reference to our theory of the production of animal heat, and the ostensible effects of nitre upon the animal system. Nitre checks the circulation of the fluids, which lessens the amount of friction, and thus retards the production of animal heat, which we have heretofore shown to arise from friction.

A refrigerant so long and so extensively used as nitre is, ought long ere this to have given evidence of its curative powers; but this evidence will be sought in vain. It undoubtedly relieves the heat of fever, and in some degree, promotes perspiration; but it has been, and may be again and again, administered day after day and week after week, with a pretty uniform effect upon the system, but who can say that it has ever, in any case, removed the cause, and effected a cure of fever? Removing the heat of fever, by the use of refrigerants of this class, can have no tendency to remove the disease itself; and especially if it reduce the heat by a sedative operation, and by merely checking its production in the system, which cannot possibly remove the cause of the complaint; and, therefore, can never effect a cure.

CHAPTER VIII.

OF THE PRINCIPAL INDICATIONS WHICH IT IS CONSIDERED NECESSARY TO ANSWER IN THE NEW PRACTICE OF MEDICINE.

Although the indications of cure in the new practice, are common to the old, yet the constancy with which some of them are pursued in the new, is somewhat peculiar to it, as others are peculiar to the old.

SECTION I.

OF VOMITING.

The importance of attending to this indication, and the assiduity with which it ought to be pursued, has been measurably anticipated under this head in a former chapter; and therefore but little need be said upon the subject at present.

It is no doubt the case, that, as diseased action produces a morbid accumulation in the stomach, which is noxious not only to the stomach itself, but to the whole system, the continuance of the same diseased action will again and again produce the same effect during the whole continuance of disease; and ought, therefore, at proper intervals, to be removed by vomiting. The morbid accumulation to which we have referred is owing principally to the following cause:—

During the healthy state of the system, there is a constant accumulation of fluids in the stomach, called the gastric juices, which are principally appropriated to the purposes of digestion, and are thus daily disposed of in the animal economy. The accumulation of these fluids is also to some extent taking place in disease; but in this state of the system, they cannot be appropriated to their

proper use, and hence acquire a morbid disposition and tendency towards the whole system.

In bad cases of acute disease, as well as in some bad chronic affections, the propriety of vomiting is indicated daily, until the force of the disease is broken and overcome. The exhibition of emetics ought to be attended to after the disease is checked, whenever the health of the patient is found to be stationary or retrograding. Fears never need be entertained of injuring the tone of the stomach by the frequent repetition of vomiting with the lobelia, as it has been fully and clearly demonstrated, that its effects upon the stomach as well as upon the whole system, are in harmony with the laws of life. Its extensive and frequently repeated use for forty years, in all diseases incident to the eastern, middle, western and southern States, by a great number of practitioners, prove beyond a doubt, that its operation is far more congenial with nature than any other emetic generally known to the medical faculty, or those whom they are pleased to denominate empirics. And with the aid of such an invaluable emetic, we cannot but recommend the frequent fulfilment of the indications of vomiting in every case where it may appear necessary.

SECTION II.

OF INJECTIONS.

The use of injections, or clysters, appears to have had a very ancient origin; being learned, as is said, from the Ibis, a bird worshipped by the Egyptians "from the services it did in devouring great numbers of serpents, which they observed injured by their stench when dead, as much as by their bite when alive."* This bird is similar to our king-fisher, and, when sick, was observed to inject with its long bill the water of the Nile into its fundament, whence the Egyptians are said to have learned the use of clysters or injections, in curing disease.†

The great importance of injections, however, seems generally but imperfectly appreciated, even by the medical faculty, if we except a very few diseases. And in these, they are comparatively of little use, from their being commonly made of inert materials.—The most common idea is, that clysters are only indicated by an obstinate costive state of the intestines; and in ordinary cases of this kind, it matters little what enters into their composition. But in diarrhœa, dysentery, fevers, and all general and serious complaints, and all kinds of diseases of the bowels, medicines, highly useful in removing the disease, may, and ought to be, introduced into the system in this manner. Moreover, at the same time that medicines are thus introduced, the intestines and muscles con-

*Smith's Treatise on Fever, page 375. †Langius, lib. II, ep. II.

cerned in the expulsion of the fæces, will be stimulated to action, and that important and essentially necessary daily removal of the useless matter from the intestines, will be accomplished without the aid of injurious laxatives or more debilitating purgatives.

The great importance of injections to promote the regular daily dejection of the fæces, particularly in fevers, especially those of the typhoid type, ought to be indelibly imprest upon the mind of every individual, and particularly those who have the care of the sick. None, perhaps, but those who have made a profession of medicine, or who are well experienced in nursing the sick, can be aware of the high importance to the sick of having regular stools. And in no way can they be so cheaply, expeditiously, and advantageously procured as by the use of clysters. The great relief which is often and suddenly obtained in this way, will far more than compensate the sufferer and his or her sympathizing friends who may have to administer this kind of relief, for all the seeming indelicacy attending this invaluable mode of exhibiting medicine.

In cases of drowning, or of suspended animation from any other cause, we have no doubt that injections of warm stimulating medicines would be of more consequence in restoring animation, than any thing else that could be advised. The intestines are known to be the most susceptible of any organ within the immediate reach of medicine. Moreover, it is said, that in drowning, the intestines exhibit traces of vitality after life has disappeared from every other part of the system. If these propositions are correct, and physiology and pathology, we think will confirm them, it must be evident that stimulating injections, by warming and exciting the intestines, are admirably adapted to resuscitate persons apparently dead from drowning.

It was the remark of Dr. Thomson, who has the chief merit of introducing clysters into extensive use; that "they are perfectly safe in all cases, and better that they be used ten times when not needed, than once neglected when they are. In many violent cases, particularly where there is danger of mortification [of the intestines,] patients may be relieved by administering medicine in this way, when there would no chance in any other. I do, therefore, most seriously advise that these considerations be always borne in mind; and that this important way of giving relief, be never neglected."*

In the complaints peculiar to infants and children, injections are peculiarly serviceable. From the nature of the food of infants, and the too common indulgence of children in unripe fruits and other unwholesome trash, their complaints mostly arise from derangements of the intestinal canal. The irritation of teething is also another fruitful source of derangement of the intestinal functions. In all these cases, injections are found to be peculiarly serviceable.

* New Guide to Health, page 87.

A modern author* speaking of the use of medicines in this way, says "Glysters are of the highest importance in the practice of medicine; and many are lost by the neglect of this invaluable mode of administering remedies. Were I confined to one remedy for the cure of disease, I should choose glysters. They are not only safe, but highly useful in every disease in its forming stage. In dysentery, and many other diseases, no physician can acquit his conscience for an omission of this remedy. Every family should have an apparatus for this purpose, and view it as a matter of the highest importance to keep it in clean complete order." It is, perhaps, unnecessary to add, that we fully concur in the sentiments contained in this quotation. We would, however, go further than Dr. JAMESON, and say, not only in the forming, but in every stage of disease, glysters are of the highest utility. With him, we feel it our duty to enforce the propriety, nay, the necessity, of every family's having a syringe, that they may be provided for all cases of emergency. In cases where medicine or food cannot be swallowed, either from a diseased state of the œsophagus, from spasm, as in hydrophobia, or in case of suspended animation, both food and medicine may be introduced into the system by injection, by which means life may often be prolonged, and the chances of cure multiplied.

Dr. JAMESON further remarks, "if they, (glysters) are so beneficial, why so childishly neglect their use because, to those unaccustomed to them, they seem indelicate; but what has delicacy to do with matters which jeopardize human life?" Much of the indelicacy, however, attending the former method of administering injections with a bladder and pipe, may be avoided by the use of a pewter syringe. This convenient and useful instrument, after being charged, must be placed under the bed clothes, and the patient can introduce the pipe, when the attendant can throw up the contents of the syringe and withdraw it from the bed, without any exposure of the patient whatever.

SECTION III.

OF VAPORIZING; OR THE USE OF THE VAPOR BATH.

THE importance to health, of the vapor bath, although it has long been known and recommended, has, in general, been but little used, until within a few years, Dr. THOMSON, and his agents, have given such an impulse to public sentiment, as seems likely to bring it into very extensive use.

Disease being a failure of that power upon which health and life depend, hence when human life is assailed by this enemy of its existence, a degree of langor or sluggishness of the animal functions takes place; the secretions and excretions do not pro-

* Dr. Jameson.

gress with sufficient activity, and particularly the removal of the worn out matter by perspiration, is checked, and becomes an additional source of irritation to the diseased organs. The animal fluids become thick and sizy as it were, and, of course, cease to circulate with the requisite facility through the minute capillary vessels, and add an additional load and oppression to the already weakened power of life.

Thus the surface of the muscles, and all the internal viscera are not sufficiently moistened with the lubricating fluids, which soften and moisten their surfaces that they may glide over each other easily and smoothly without too much friction; and, furthermore, the thickened juices, although they continue to flow sluggishly on, do not pass through the vessels in that agreeable manner that they do in health. The pain and soreness of the flesh; the headache; the lassitude; the debility, and the often extreme aversion to muscular exertion, or motion, some part, or the whole of which symptoms so uniformly usher in an attack of fever, the most universal complaint of the human family, may readily be traced to such a state of the system as we have described.

Now the application of heat, in any form, to the human system, it is well known, acts as a powerful stimulus; but applied in vapor or steam, it is known to be far more penetrating and efficient than it is in any other manner. It adds vigor to the living power, and penetrates and relaxes the constricted vessels; stimulates the organs; attenuates or thins the various fluids, and thus promotes the secretions and excretions; whence the muscles and viscera are again properly lubricated; perspiration returns; the worn out morbid matter is removed, and all the functions of life are again performed with healthy activity, and health and vigor assume their empire over the frail and complicated tabernacle of man.

Heat and moisture, that is, vapor or steam, applied to the surface of the body, is both emollient and anodyne. It relaxes the rigidity of the skin and external parts, in all cases of fever and inflammation; and, in cases of broken or dislocated bones, cloths wrung out of hot water, and applied as hot as can be borne, will relax the muscles so that the bones may be replaced, if done soon after the accident, almost without pain. And in all cases of the most excruciating pain, indicating, as the old practitioners would judge, the use of opium or the lancet, the proper use of the vapor bath will afford the most sudden, efficient, and permanent relief. It affords this kind of relief because it acts upon physiological principles; removing the cause, and restoring a healthy action. The cause of pain, as we have before observed, is an obstruction in the painful part, excepting cases where pain is produced by sympathy. The application of heat and moisture, as we just remarked, penetrates the system; relaxes the constricted vessels;

attenuates the fluids, and strengthens the living power to perform its office, and thus relieves in a mode which opium nor bleeding can never do. Hence too, the pain and soreness; the headache and stupor; the lassitude and debility; and the sluggishness of the fluids, which characterize fever, are removed on the same principles.

And the usefulness of vapor or steam, is not confined in its application to the skin. In painful inflammatory affections of the lungs, attended with internal soreness and difficulty of breathing, inhaling the warm vapor of vinegar and water, affords the most grateful relief. The same thing is also useful in bad cases of sore throat, of every description.

To the foregoing, we also beg leave to introduce the testimony of others in favor of the vapor bath. The Domestic Encyclopedia, on the subject of baths, says "We allude to the sweating, or vapor bath, which," in Russia, "is used by persons of every rank and age; in almost every disorder, before and after a journey, hard work, &c. These are frequented at least once a week, or as often as possible, whether in a state of health or of sickness. The extraordinary degree of heat produced by the evaporation of water thrown on hot stones, in a close room, raises the thermometer from 146 to 168 degrees; the latter of which number, is a degree of heat considerably above that which melts wax, and only twelve degrees below that for boiling spirits of wine. In such a bath, the Russians lie naked on a bench, and continue there, notwithstanding a profuse perspiration, sometimes for two hours, occasionally pouring hot water over their bodies; thus some with a view to promote perspiration, and completely open the pores, are first rubbed, and then gently flagellated with the leafy branches of birch, while others wash their bodies with cold water, and all of them at length plunge in a large tub of water. Many, however, rush out almost dissolved in sweat, and either throw themselves immediately from the bath room into an adjoining river, or in winter roll themselves in snow, during the most piercing cold, without suffering any inconvenience, and probably with advantage, for we understand that rheumatisms are scarcely known in Russia; and there is great reason to attribute this exemption to the use of the vapor bath." "By exciting an unusual degree of perspiration, they (vapor baths) promote cleanliness, while they render the skin soft and smooth."

Dr. Thomas, in treating of the means of curing rheumatism, recommends a warm, or a tepid bath, according to circumstances. "Both remedies, however, may" he says, he thinks, "be considered of inferior value in the cure of rheumatism, when compared with the topical, and sometimes general use of hot water in the form of vapor. Whenever the joints are very rigid, and the pain upon motion exquisitely severe, or where the muscles have become

contracted and almost paralytic; and indeed, in all protracted cases of the disease of the hip joint, lumbago, or sciatica, the vapor of hot water, locally and properly applied, will seldom fail, in conjunction with other proper topical applications, to prove a safe and successful remedy." "A vapor bath, constructed agreeable to the plan advised by the honorable BASIL COCHRANE, or in the Russian manner, would be a great acquisition in all infirmaries and hospitals."*

Speaking of the mode of applying hot water in the obstinate complaints just named, Dr. THOMAS observes "A large boiler, with a pipe affixed to it, forms a simple apparatus. With this, the parts affected may be *steamed* for about half an hour at a time, repeating the process two or three times a day."† Yes kind reader, credulous or incredulous, Dr. THOMAS, an eminent medical practitioner of the old school of medicine, who has practised in both hemispheres, and in different climates, having, as he says, "obtained an "insight into the practice of physicians of both Russia and Sweden, during a residence in the capitals of those empires," and an "experience of upwards of forty years," unhesitatingly recommends what, in the practice of Dr. SAMUEL THOMSON, and his agents, is considered as an empirical and dangerous custom. And Dr. THOMAS recommends this *terrible* operation of steaming, not only topically but generally, and considers it preferable to the warm bath, which "frequently renders the patient hot and restless." "Now the advantage," says Dr. THOMAS, "of the vapor bath, (steaming) is, that perspiration takes place at a much lower temperature in it than the other." In the warm bath, "when the exhalents are ready to yield their contents, the surrounding medium, (water,) presses upon the cuticle, and in some measure prevents the flow of perspiration which it had brought upon the surface: on the contrary, in the vapor bath the heat being applied to the body in an æriform state, unites with the insensible perspiration as it arises by the exhalents, condenses upon the surface, and drops from the body by its own weight, meeting with no resistance from the elastic vapor."‡

We deem it unnecessary to say more with regard to the superiority of vapor bathing, over immersion in warm water, as but little reflection will, we think, convince any thinking mind of the fact. But we will take the liberty of introducing a few remarks from the writings of W. TOOKE, which were the result of several years observation of the good effects of vapor bathing amongst the Russians.

"It is not to be doubted," says TOOKE, "that the Russians owe their longevity, their robust state of health, their little disposition to certain mortal diseases, and their happy and cheerful temper, mostly to these baths, though climate, aliment, and habit of living, contribute their share. The great Lord Chancellor BACON, and

* Modern Practice of Physic; see Rheumatism.
† Modern Practice of Medicine, article Rheumatism. ‡ Ibid.

other sagacious observers of nature, and of mankind, have lamented and certainly not without cause, that this bathing has fallen into disuse among the modern nations of Europe, and justly wish the practice back again, in all our towns and villages. In fact, when we consider that the old physicians so early introduced into their practice this remedy of nature's own invention, and employed it with such great success; when we recollect that Rome for five hundred years together, had no physicians but only their baths, and that to this day a multitude of nations cure almost all their maladies merely by baths; we cannot avoid regarding the dismission of them as the epoch of a grand revolution, which has been wrought in the physical state of the human race, in our quarter of the world. The natural perspiration, the most important of all excretions, must naturally go on better in a body constantly kept soft by bathing. A great number of impurities which privily lay in us the train to tedious and dangerous distempers, are timely removed ere they poison the blood and juices. All exanthematic diseases are abated by bathing, consequently then small pox; and if this dreadful disorder be actually less fatal in Russia, than in other countries, this phenomenon will not be attributed to any other cause than the vapor bath."

SECTION IV.

OF COLD BATHING.

The usefulness of the cold bath, both in preventing and curing disease, has been known and acknowledged from time immemorial. The practice of cold bathing was so highly esteemed in ancient times, that amongst the oriental nations, and particularly the Jews, bathing was a part of their ritual ordinances.

The custom of cold bathing, however, like that of vapor bathing, has very much fallen into disuse: though it has retained its sway in the United States, far beyond that of vapor bathing. The cold bath, like the vapor bath, may be advantageously used either topically or generally. As a topical application it is useful in some cases of headache and rheumatisim; in all cases of sprains and local inflammation; in wounds, and particularly in cases of burns and scalds. In the last cases it is one of the most grateful and efficient applications which can be applied. It immediately allays the most intense pain; and by renewing the application as often as the pain recurs, the inflammation attendant upon such accidents may be entirely removed, and very frequently when applied seasonably, blistering will be entirely prevented.

Cold bathing is resorted to as a general application, in ardent fevers; in some kinds of rheumatism; in relaxation of the cutaneous vessels; in nervous debility, and a great variety of complaints, for

which purpose thousands of persons annually, both in Europe and America, resort to the mineral springs and to the sea, according to the nature of the disease or the fancy of the patient. Cold bathing is a powerful tonic and bracer of the system, and may be advantageously resorted to, in a great many cases; but as an indication of cure peculiar to the new physiological practice of medicine, it is very highly beneficial, and extensively used. It is used in all cases, after the vapor bath, in the simplest form, by pouring upon the patient in a high state of perspiration, a quantity of water proportioned to his age, size, strength, or other circumstances.

This practice is viewed by most individuals unacquainted with the new system of medicine, with astonishment and even terror. This, however, is what might be readily expected; it being so directly opposed to the popular ideas, in this country, respecting the means of promoting health. But in Russia, as has already been noticed, the practice of cold bathing, or washing with cold water, after producing a high state of perspiration in the vapor bath, is a common thing; being resorted to by all classes of society. In the quotation from the Domestic Encyclopedia, which we gave, in treating of vapor bathing, the reader may have observed, that it is there stated, that the Russians rush out of the bath room, almost dissolved in sweat, and either throw themselves into an adjoining river, or, in winter, roll themselves in snow, during the most piercing cold, without suffering any inconvenience, and probably with advantage. We will only add, that the advantage is more than probable; as it is very improbable that such an apparently daring practice would be continued unless the beneficial effects of it were appreciable and uncontrovertible.

The testimony of Dr. Thomas also confirms the statement in the Encyclopedia as to the practice of cold bathing whilst in a high state of perspiration. "During my stay," says he, "at Petersburgh, I observed that many of the Russians threw themselves immediately from the bath room into the adjoining river. In the winter they roll themselves in snow, in a frost of ten or more degrees of Reaumur's thermometer." Dr. Thomas says nothing as to the good or bad effects of this intrepid practice; but it is fair to presume that he observed no bad consequence to follow it. But for the proof of its innocency we need not refer the reader to the Encyclopedia, to Dr. Thomas, nor to the Russians. The same practice has been very successfully and extensively brought into notice by Dr. Thomson; and by his agents and others introduced into every state in the Union.

After the patient has passed through the operation of vapor bathing and perspired profusely, as is generally necessary in all bad cases, in order to throw out from the system the morbid accumulation which has taken place in consequence of the want of vital energy to carry off the worn out, superfluous matter through the

proper emunctories, and more especially when, in addition to vapor bathing, an emetic has been prescribed, the skin, and even the whole body, is relaxed; and the patient sometimes feels weak, faint or languid. The application of cold water always removes these symptoms wholly or in part, and leaves the patient in the enjoyment of a warm, pleasant, glowing sensation over the whole body, as delightsome as unexpected, to those unacquainted with this healthful practice. And in all cases of immoderate sweating, whether caused by artificial means, or arising from a laxity of cutaneous vessels, cold affusion produces the happiest effects. The tonic and contractile powers of the cold water, braces and strengthens the perspiratory vessels, as well as every other part of the system. The nervous and sanguiferous systems, upon the equable action of which, health so much depends, particularly receive a powerful impulse; and, nature, always ready to profit by every favorable circumstance, assisted by the strength which she derives from this new impulse, secures, so far as she is able, what has thus been gained.

CHAPTER IX.

OF THE THEORY OF FEVER AND INFLAMMATION.

The theory of fever and inflammation has been a fruitful theme for the physiologist to dwell upon, without any thing having hitherto been elicited which could bear the test of investigation. Nor can it be astonishing that theories should be unsettled and uncertain, so long as the practice remained unimproved, and continued so contradictory and inconsistent. Theories, to be sure, are but the butterflies of the day, and may generally be said to be at variance with correct experience and sound practice; yet, in some measure conformably with custom, and also in conformity with the new physiological doctrine and practice, we deem it not out of place to throw together a few theoretical hints upon fever and inflammation.

SECTION I.

OF FEVER.

Whether we regard fever as a disease of more universal prevalence than any other whatever, or as being the most prolific outlet to human life, it must be considered as claiming pre-eminent attention, both in a physiological and practical point of view. The following observations on this subject, from the pen of Dr. Hosack, being so much in unison with our own, we take the liberty of transplanting them into our pages.

"From the earliest period to the present day," says he, "the subject of fever more than any other disease to which the human frame is liable, has received the attention of physicians. Yet, looking into our obituaries, we find that fever and febrile diseases still constitute the great outlets of human life, and are at this day almost as fatal as they were in the time of SYDENHAM, who calculated that fevers, properly so called, make up nearly two-thirds of the diseases which prove fatal to mankind, and that eight out of nine of all who die, are cut off by febrile complaints. However, minutely, therefore, we may be acquainted with the symptoms of fever in its various forms and stages; however extensive may be our knowledge of its predisposing and exciting causes, we certainly are very deficient in our acquaintance with the *proximate* cause of fever, or its treatment would be more distinctly defined in its various stages, than it appears to be in any of the great practical works that have fallen under our notice. Whence, then, has arisen the discordant, and, we may almost say, the *empirical* practice, that fills the pages of the best writers on fevers, and that are even to be found in the truly valuable works of BŒRHAAVE, CULLEN, FORDYCE, WILSON, and others? We answer, it is in a great degree ascribable to the local views of the animal economy to which some of these writers have been limited by their own hypothesis, and which practitioners relying upon the authority of great names have hastily adopted."

Here we have the sentiments of an able physician who is well qualified to judge of the imperfections of the common treatment of fever, and which he very justly attributes to the local views of practitioners, and their deficient knowledge of its proximate cause; in short, to the want of a correct theory from which to deduce correct principles, upon which alone a rational practice can be founded.

We have, in general terms, anticipated the proximate cause of fever, in our definition of disease; but, inasmuch as the complaints comprised under the common appellation of fever, in consequence of their universal prevalence and great mortality, have given rise to many hypothetical theories, we propose briefly, to point out what we believe to be the cause of that catenation of symptoms which constitute this fatal malady. And although we may occasionally advert to some of the preceding theories, we cannot, in a popular work like this, pretend to attempt a general review of any of them.

It will have been perceived that we attribute the cause of all disease, to a failure of the living power, which may be regarded as nearly analogous with Dr. CULLEN's "sedative powers applied to the nervous system, which diminishing the energy of the brain, thereby produce a debility in the whole of the functions." But we do not agree with him that this diminished energy of the brain

produces a *spasm* of the extreme vessels, because we have no evidence that spasm does exist. These vessels are, no doubt *contracted;* but simple contraction may, and does, exist without spasm. We are unable to perceive, in ordinary cases of fever, the slightest traces of spasmodic affection, of these vessels. Neither do we agree with Dr. CULLEN, that "debility proves an indirect stimulus to the sanguiferous system," because the idea of *debility* operating as a *stimulus* is perfectly incompatible; at least it explains nothing. But we believe that this effect is produced, and that all the beneficial consequences which he attributes to "the intervention of the cold stage, and spasm connected with it," are produced upon philosophical principles which are susceptible of a satisfactory explanation. We must confess, however, that a part of the Cullenian theory is nearer correct than any other which has hitherto been offered to the public. It only fails in accounting, upon correct principles, for the various phenonema attending fever.

We have heretofore intimated, that all disease was caused by something which, in its operations upon the system, produces debility: That similar causes produce, in general, the same effect; that is, they affect, in common, the same organs in all individuals within their influence, which is exemplified in contagious and epidemic diseases.

In contagious complaints, as measles, or small pox, the contagious matter being applied to any number of persons, produces a similar effect upon all; though it may sometimes fail to produce any effect at all, but this is a very rare occurrence. And just so in epidemics; they arise from a vitiated state of the atmosphere, to which all being alike exposed, every person who becomes thereby diseased is affected in nearly a similar manner.

Now the human system is so constitued, that the greater proportion of debilitating powers, when applied to the body, act upon certain organs in such a way as to produce an effect which is denominated fever. And it would seem most rational that this should be the case; for fever is a disease, to adopt the language of Dr. FORDYCE, "that affects the whole system; it affects the head and trunk of the body, and the extremities; it affects the circulation, the absorption, and the nervous system; it affects the skin, the muscular fibres, and the membranes; it affects the body, and likewise the mind. It is, therefore, a disease of the whole system, in every kind of sense. It does not, however, affect the various parts of the system uniformly and equally; but, on the contrary, sometimes one part is much affected in proportion to the affection of another part."* Hence the greater number of debilitating agents produce one common effect upon the whole system, and a corresponding disease of the whole system is produced, which is termed fever.

*Dissertation on Fever, page 16.

And to this circumstance may be assigned the more universal prevalence of fever than of any other disease; every debilitating agent applied to the body, acting as an exciting cause. And hence we find excitement and heat, or what is termed fever, attending almost all complaints.

There are other eminent theorists, however, who maintain that fever is essentially a local disease; and that the appearances which have led to the conclusion that it is general, are fallacious; contending that the general derangement of the system, is referable to diseased action in a single organ. The principal champions for this theory, are CLUTTERBUCK and BROUSSAIS. "There is," says Dr. SMITH, "a perfect accordance in the doctrine of these two celebrated and rival theorists, respecting the nature of fever; both are agreed that it is an affection of the solids of the body, and that its essence consists in inflammation; both are agreed that that inflammation is strictly local, being seated in a single organ; but in determining which that organ is, there is an entire discrepancy in their opinions.

"According to Dr. CLUTTERBUCK, the organ universally affected in every variety of *ideopathic* fever is the brain." "BROUSSAIS, on the contrary, contends that the primary and essential seat of inflammation in fever is the mucous membrane of the stomach, or of the intestines, or both, but especially the former, and that, therefore, the proper designation of it is *gastro-enteritis*."*

Another opinion as to the seat of fever, has lately sprung from the London Fever Hospital, which has given rise to an elaborate treatise by Dr. SMITH, from which we just made a quotation.—Actual examinations by dissections after death, in every fatal case at that hospital, has enabled Dr. SMITH to decide that not only the stomach and intestines were in a state of inflammation, but also the lungs and brain. He lays it down as an invariable circumstance, that the first indications of fever "are clearly traceable to the nervous system: that the disorder of the functions of the brain and spinal cord with which the attack always commences, demonstrates that these organs form the primary seats of the malady."†

If Dr. SMITH's proposition be correct, that an affection of the brain and spinal cord be the invariable primary affection in fevers, and we think all experience goes to confirm it, then it follows that the nervous influence must be in some way impaired over the whole system. And here the facts and observations of Dr. SMITH, confirm the views of CULLEN, that "the remote causes of fever, are certain *sedative* powers applied to the nervous system." We may, however, be permitted to remark, that the nervous system, like every other set of organs in the body, is dependent for its activity,

*Smith's Treatise on Fever, pages 36, 37.
†Treatise on Fever, page 345.

upon the general power of life, which, as we have said, is concentrated in the blood. Hence we observe, that if the nervous energy resides in a fluid, which is the most prevalent opinion, the brain and spinal cord must perform the office of a gland, in which the nervous fluid is secreted or separated from the blood, and, through the agency of the nerves, is transmitted to every part of the body.

From this view of the subject, we may comprehend how the application to the body of any of the debilitating powers, which produce fevers, affect the nervous system; and through it the whole body, which is acknowledged by all classes of theorists, to be sooner or later the case in all febrile diseases. And the specific effects, thus produced, constitute that peculiar train of symptoms which, from the very infancy of medicine, have received the name of fever; which name is derived from the almost universally attendant symptom of increased heat of the whole body.

Let us now examine the symptoms and the effects, actual or apparent connected with fever:

In tracing fever from its origin to its termination, we find it to consist of a certain train of events, succeeding each other in a certain manner.* The order of occurrence of these events is determined by the symptoms; which are nothing more than the sensible or visible effects of disease.

Dr. Currie has supposed that the first operation of the remote cause† producing fever, is debility of a peculiar kind. This is in perfect accordance with Cullen: but we do not agree with these authors, that this debility produces a spasm of the capillary vessels of the surface, because, as we have elsewhere observed, none of the common characteristics of spasm are known to be present.—But most certain it is, that these vessels, in ordinary fevers, do contract, either as a direct or remote effect of the diminished energy of the living powers of which debility is only the symptom or evidence. This state of the vessels, however, is most probably the effect of impaired nervous influence, which probably extends not only to the capillary vessels of the surface, but to the whole sanguiferous system, and even the whole body.

Facts have been recorded by writers, sufficient to show, and all experience goes to confirm it, that there is a shrinking of the whole body, and particularly of the arteries which are near the surface, in all ordinary fevers. All authors agree that the skin is constricted, and some assert that this constriction extends to the whole substance of the body. The arteries which can be felt (the radial at the wrist, for instance,) are evidently to the feel lessened in their size from what they are during a state of health. And the whole secretory vessels throughout the body, says Fordyce,

*Smith's Treatise on Fever.
†Modern Practice of Physic, page 26.

secrete a smaller quantity of fluids, in fever than in health. The kidnies, the bladder, the mucous glands, the exhalents, all appear to be constricted; and also the vessels that furnish the fluids which lubricate the surfaces of the muscles, appear contracted, because a wound or an ulcer, in any part of the body, becomes dry during the attack of fever.*

The natural consequence of debility, whether it be that which is peculiar to fever, or any other, is to reduce the motion of the blood or pulse; and accordingly we find a small slow pulse almost always attending the onset of fever. This slowness of the circulation, aided probably by the diminished influence of the nerves, lessenr the production of animal heat, which produces the coldness most commonly preceding the hot stage of fever. The idea always associated with the application of a sedative to the system is, that of producing a diminished energy of the vital actions; and this term is used by CULLEN to designate that peculiar debility which produces fever Sedative remedies uniformly check the circulation of the blood, from which it is more than probable, he derived the idea that the cause was a sedative one, which produced fever.—And from the langor of the circulation, we may readily infer that a check must be given to the production of animal heat, which accounts, as just observed, for the cold stage of fever.

It may be objected to this hypothesis, that coldness is by no means a constant or never-failing precursor of the hot stage of fever; but that this stage often times comes on with no other premonition than a sense of langor and debility, with the other concomitants of this disease. But we do not consider this as an objection of much weight: as it is an admitted fact, that all general rules have exceptions: and it will be found that but few cases of fever occur, which are not preceded by some degree of coldness, more or less apparent or sensible to the patient.

So great a depression of the living power has sometimes taken place in this stage of the disease, as to cut the patient off at once; but instances of this kind are rare. Such occurrences would no doubt more often happen, were it not for that wise provision for our preservation by which we are so constituted, that disease produces effects upon the system which are calculated to remove the cause that produced them: in other words, disease is its own physician. If this were not the case, every person taking a chill must undoubtedly die in it, unless relieved by medicine. We know that physicians have attributed this rousing of the system from its depressed state, to the *vis medicatrix naturæ*, or the efforts of nature, as if nature were a sentient power or being, capable of perceiving the inroads of disease, and of arming herself to the

*Fordyce, page 33.

combat. Such an idea is certainly more befitting a romance, than a grave treatise of medicine.

The whole phenomena is no doubt susceptible of explanation upon chemical or philosophical principles, which are modified, however, by the very different situation of *living* from dead or any other inanimate matter. All matter was made by a Supreme Being, and endowed each kind, with certain principles which, in combination, under certain circumstances, produces peculiar effects; and the effects of disease may as rationally be attributed to matter acting upon matter, as the consumption of fuel to the action of fire or heat. We have heretofore shown, that life and organization was the effect of the various proximate elements of which we are composed, acting upon each other under the influence of laws peculiar to the living state; and disease, we as confidently attribute to a similar action, but with this difference, that something is either abstracted or superadded to the elements of health, by which the living harmony is disturbed, and may eventually be annihilated in death.

With these views, and from these premises, we shall proceed to point out, so far as we are capable, the cause of the remaining events or phenomena of fever, and their intimate relation with, and dependence upon each other. We may not, however, be able, satisfactorily, to account for the true cause and to point out the proper relative connection of those events; nor do we expect to steer clear of all former hypothesis; but we trust that the rule which we have laid down, by which all phenomena, both in the living and in the dead, as well as the healthy and unhealthy states, must be tried, will bear the test of scrutiny and of time.

We have remarked that the cause of fever was a failure of the living power, the consequent effect of which is diminished secretion of the animal fluids; contraction of the body and all its vessels;* langor in all the vital functions; with commonly a cold sensation over the whole surface of the body. From this depression the organs must be aroused, or the vital force will utterly fail, and the career of life be closed forever. And this very check of the secretions and the contraction of the body and its vessels, the natural result of diminished vital energy, produces another effect which is calculated to remove the very cause which produced it. In consequence of the check given to the secretions, and particularly that of the perspirable fluid, the quantity of the blood is unimpaired, perhaps increased; but it still continues to flow, though more slowly than in health, through its proper vessels which are now reduced to a smaller diameter than they are in the healthy state. Here it must be evident, that although the motion of the blood is checked, its friction against the sides of its vessels is increased; and hence, upon

* Fordyce on Fever, page 26.

the principle of accounting for the production of animal heat by friction, an increase of heat is the consequence. The heat thus produced, operates as a stimulus upon the vital organs, and the propelling power of the blood acts with greater energy, which accelerates the circulation, and increases the friction and heat, which thus continues to act as cause and effect, and produces the hot stage of fever.

We cannot precisely agree with Dr. THOMSON, that the heat of fever is necessary to health, and yet we do not see how to avoid the virtual admission of such a seeming paradoxical proposition.—We know that the heat and excitement of fever, is incompatible with the healthy state of the system; and yet the morbid depression which invariably attends the forming and cold stages of this disease, must undoubtedly prove fatal, without the intervention of some process to produce that evolution of heat, which gives birth to the term fever. This hot state of the system is absolutely, nay, indispensably necessary, to rouse the vital organs from that state of imbecility to which the loss of living energy has reduced them.—Without the intervention of the hot stage, as it is called, of fever, every person who becomes affected with this depression and chill, must undoubtedly die, unless relieved by suitable medicine. And cases of this kind have actually occurred, even at the very first onset of fever, by which the life of the patient has been terminated in a few minutes, or a few hours.* Hence we are led to the conclusion, that although the excitement and heat of fever is incompatible with a state of perfect health, yet it is in accordance with that law which governs the animal organs, and is subservient to the restoration of a healthy process.

But even this state of the system, so essential to remove the disease, must not long continue, or the tone of the organs will be destroyed, and the living power become exhausted. In this condition of the body, little or no nourishment can be thrown into the stomach to replenish the waste which is rapidly going on in the system.

And we are here forcibly struck with the wise provision of our great benefactor, in the adaptation of means to the end which it is requisite to produce in the restoration of health. It is a fact, first noticed perhaps by Dr. CULLEN, that the violence and intensity of the fever is almost always in corresponding proportion with the chill. Hence, if the chill have been severe, the succeeding heat and excitement will rise to a corresponding height; because the greater the prostration of the vital power, and the more the vessels are constricted, the greater the excitement and heat necessary to overcome them. The effect will be equal to the cause by which it was produced; and must also be equal to the end to be accom-

* Fordyce, page 32. Also, Smith's Treatise.

plished, which is the removal of the constriction of the vessels, and of the morbid matter from the system.

The hot stage, of which we have been speaking, after continuing a length of time, is succeeded by the sweating stage, which completes the paroxysm of fever.

Heat is known to be one of the most important products of animal life; the continual operation and effect of which is necessary to existence. Its artificial application to the body in any manner, or by any means, uniformly relaxes the solids, attenuates the fluids, promotes the secretions and excretions, particularly perspiration, and increases the sensibility of the external parts. Hence, when the heat of fever has arisen sufficiently high, and continued sufficiently long, the juices become attenuated or thinned, the constricted vessels are relaxed, the secretions are promoted, and a moisture breaks out on the forehead, which gradually becomes a sweat, and extends over the whole body. With the flowing of the sweat, the heat of the body subsides, and most of the functions are again performed nearly in their ordinary manner.

We have now given the history of a complete paroxysm of fever, which, as Dr. FORDYCE asserts, constitutes the whole disease, and from which we think no one, after mature deliberation, will dissent.

A *perfect* paroxysm, agreeably to the views of FORDYCE, makes an end to the disease, and leaves the patient in his ordinary health, when he is no more liable to a return of the fever, than one who has not had it. All fevers consist either of a single paroxysm, such as we have described, or of "repetitions of it, modified in a great variety of ways."*

In the true ague, these simple paroxysms recur at different periods, from twenty-four to seventy-two hours, or in some instances a longer time elapses between them. In this disease, which is also termed intermittent fever, the fits at each return, go through the same round of stages, cold, hot, and sweating; and, in some instances, continue their recurrence for a long time, even for a year or more, without any apparent exhaustion of the patients strength, after the first few days or weeks.

The regular and exact return of the paroxysms of intermittent fever, has often engaged the attention of medical men, in all ages; but hitherto, no satisfactory cause has been assigned for this common but extraordinary phenomena. Some have attributed, or rather compared it to that disposition so conspicuous in many of the operations of nature to observe regular periods; as, for instance, the earth's annual revolution round the sun; its diurnal revolution on its axis; the regular returns of the seasons, &c. &c. But even admitting that there was some analogy between the revolutions of

* Fordyce on Fever, page 106.

the earth and the regular return of the paroxysms of an intermittent, it would account for nothing—it would explain nothing. With regard to the revolutions of the earth, and the return of the seasons, we not only know that they take place regularly within certain periods, but we also *know* the reason or cause why it is so. Attraction produces the revolutions of the earth, as well as of the whole solar system; and the particular position of the earth with regard to the sun, causes the regular return of the seasons. But do we see any thing like this, influencing the return, with so much regularity, of the paroxysms of fever?

Without pretending to be able to explain this hidden mystery, we will suggest a few ideas which may possibly assist some more acute observer, in the investigation of this intricate pathological question.

We will first direct our attention to the origin of the disease, or first paroxysm. It often happens, says FORDYCE, and it is confirmed by our own observation, that a person may sit down to his dinner, with a good appetite, and apparently in good health, and be taken so suddenly sick that he will be able to eat nothing; or he may eat a hearty meal, and have a severe attack of fever shortly afterward. Occurrences of this kind are by no means uncommon. The morbid poison, or whatever it may be that thus so suddenly prostrates the vital powers, could not, for the first time, have been applied to the system, at the moment of attack: the body must have been previously subjected to its influence, from which time it was secretly at work, until some favored moment presented to exercise the full extent of its power. The consequence then is a paroxysm of fever; which, if it prove an intermittent, returns again after twenty-four, forty-eight, seventy-two hours, &c. according to the type which it may assume.

It would seem that the sedative power which produced the first paroxysm, still held its seat in the system, and was secretly exerting its influence as at first, until it produced another fit of the disease. The time which these sedative powers require to produce their specific effect, is probably modified by some peculiar influence of the febrile virus upon the living power, or upon the organs of the system; or by the *idiosyncrasy* of the individual.—It may also be modified by the seasons of exercise and repose; that is, day and night. Exercise and rest or sleep, have an important influence upon our bodies; and a due proportion of each, regularly observed, is essential to health.

Our ideas respecting the modification of the effects of the febrile virus upon the living power or upon the organs, as regulating the length of the intervals between the paroxysms, receives support from the irregularity of the paroxysms of a remittent fever. In this disease, the fits recur at irregular intervals, and without a perfect remission of the fever: the paroxysms are

also very irregular in their duration. As this fever is produced by the same remote causes, or sedative powers, that induce an intermittent, we may readily infer that a modification of the effects of the febrile virus, gives rise to the different types of the disease.

Another modification of fever, is that termed continued. In this type, the paroxysms succeed each other in such rapid succession, that no perfect remissions take place between the paroxysms:—hence the name continued fever.

The explanation of continued fever, which we have just given, has been pretty generally received and admitted, since FORDYCE's time, and affords another proof of the universal operation of the law that we have endeavored to illustrate, which makes disease its own physician. We have already given the general history of a paroxysm of fever, in which was pointed out the dependence of one event upon another that preceded it; and that all the events which succeed the cold stage are necessary in the natural process of cure. In continued fevers, there are evident *exacerbations* and remissions daily;* but the remissions are less prominent or distinguishable than in fevers of the remittent type. This fever is also produced by the same exciting causes which induce either of the other types; and may therefore be considered as another modification of the effects of the febrile virus upon the living power of the system or of some of its organs.

In continued fevers, the salutary effects of the healing process, are not so extensive, or they are not, from some cause, so efficacious, as they are in intermittents. Although a remission is partially produced, there is no crisis; the symptoms only abate, and then are exasperated.

Thus we have shown, that the same law runs through all the types of fever, but in some, acting with less energy than in others. In what Dr. FORDYCE terms a simple fever, which consists of but one single paroxysm, this law acts with such energy that health is completely restored. In intermittents, the law of preservation acts with less force; consequently a sound healthy action does not immediately take place, but another paroxysm succeeds, after some specific interval, according to the type which the disease may assume; and may be followed by a repetition of the fits to an indefinite number. In remittent fevers, this law acts with still less force, and with less regularity, than in intermittents; whilst in continued fevers, its power seems nearly inert; but even in these it will often ultimately prevail, and accomplish a cure, unaided by medicine.

Those who are familiar with the theories of medicine will undoubtedly perceive the close analogy which exists between our

* Thomas' Modern Practice.

views of fever, and those of Dr. CULLEN. We do not claim originality for them, although they were conceived without any assistance from CULLEN's theory other than a casual notice of his doctrine of spasm, which we found in Dr. THOMAS' Modern Practice of Physic, under the head of continued fevers. But since our own ideas were more matured, we have become better acquainted with Dr. CULLEN's views of fever, with which we have been much gratified, because they are so much in unison with our own. It may be said, perhaps, that the Cullenian theory, like most others, is exploded. To this we partly accede; but its most important feature stands yet unimpaired, and will be a monument to his memory when we shall be unknown. But if it be at this moment, says Dr. GOOD, crumbling into decay, it certainly is not falling prostrate before any fabric of more substantial materials, or more elegant architecture.

We must be permitted, however, in justice to ourselves, to observe, that in a few particulars at least, we either differ with, or supply a defect of Dr. CULLEN. He appears to think that the cold stage, with spasm of the minute vessels, is merely a link in the remedial process?. whereas, we regard them, particularly the spasm, for which we substitute the term constriction, as the first effects of diseased action, which must be opposed, and a contrary state of the system produced. Hence, we consider the hot and the sweating stages alone, as concerned in the remedial process, and alone to be promoted. Not that the absolute apparent heat of a fever ought to be increased; but the cold stage should be removed, whilst the relaxation of the constricted vessels, and the perspiration should be encouraged.

"There is nothing," says Dr. GOOD, in CULLEN's "hypothesis to account for a return of debility and spasm after they have been subdued; nor to show why spasm should ever in the first instance be a result of debility." This objection we have endeavored, in some measure, to obviate in our own theory; but something perhaps yet remains to be done to perfect it.

We will close the subject of this section by some remarks upon the failure of the theories, and the consequent eternal round which they have been running through the works of medicine. The principal cause of their failure may be briefly summed up in a few words—the ignorance of medicines in some instances, which would act in harmony with theory and life; and in other instances, the perversion of a correct theory of disease, in its application to medicine.

Dr. BROWN's theory failed, because his stimulants, which were brandy, opium, &c. did not act in harmony with the laws of animal life. These articles produce a mere temporary excitement of the blood and of the nervous system, without adding any thing to the living power. They seem to produce their effect upon the

body, by calling into action the vital energy, and thus produce an expenditure and waste of this force beyond what the natural operations of the system without them would require; and hence when their action ceases, the strength and living power of the patient is found to be exhausted in proportion to the excitement which has thus been produced. We may illustrate this more intelligibly by supposing a scale upon which the power of life is graduated. On this scale we will suppose death to be zero, or the starting point, at the bottom of the scale, and perfect health we will suppose stands at forty degrees, which is at the top of the scale. We will now suppose that an attack of disease reduces the living power from forty to twenty degrees; we then administer a dose of brandy or opium which raises it to twenty-five degrees in the scale. Here is an excess of five degrees produced by the stimulus of the medicine; but inasmuch as the brandy or opium add nothing substantially to the power of life, it sinks down to fifteen degrees in the scale; five degrees below where it stood before the medicine was administered. It will add nothing to the arguments in favor of those unnatural stimulants, to say that they must be repeated before this sinking takes place; because if one dose wears out the living power, as is universally admitted, then two doses must weaken it still more, and so on *ad infinitum*.

We have reiterated the rule, that medicine ought to act in harmony with nature or the laws of life, even as much so as food; and if it do, it will not wear out the living power, but will add something to it as food does. It is upon this rule, that medicine ought to act; at least, it ought not to weaken it, either directly, as the cathartics in common use and sedatives do, or indirectly as brandy and opium do. Had Dr. Brown's medicines possessed the happy quality of acting in harmony with life, the fate of his system would have been far otherwise than it is, and the corrupt and incendiary practice which had preceded his time, and which has prevailed down to the present moment, would have been shorn of many of its destructive weapons.

Dr. Cullen's practice too, had it been in accordance with his theory, both as to the medicine and its mode of administration, would have disrobed fever, that frightful spectre, of half its terrors. But his eye was closed—his judgment sealed! Although he had the capacity to unbar the gates of wisdom, and open the portals of science—to penetrate the recesses of knowledge, and remove much of the rubbish with which medical learning was encumbered, yet he was so wedded to established medicines that with all the force of his brilliant genius, and the power of his mighty mind, he did nothing substantially to improve medicine, or he would have adapted a mode of practice, to his theory of fever.

In like manner, Dr. FORDYCE improved the theory or principle of treating fevers; which was to make use of such medicines as were best calculated to produce the same effects that are produced in the termination of a paroxysm by the simple powers of nature. Or, in his own language "to produce those appearances which take place in the ordinary crisis of fever;" and no fever was ever terminated in any other way, except it were by death. Every fever, from the mildest *ephemera*, or slightest intermittent, to the most malignant plague, if it ends in health, must terminate by a free perspiration. And it is the object of the physician's anxious care to promote this essential evacuation. It was upon this principle of drawing the indications of cure from nature's own pointings, that Dr. FORDYCE's practice was founded; and the principle was undoubtedly correct; but alas! he also failed of complete success, because his remedies were incompatible with the laws of animal life.

It was reserved for Dr. THOMSON to settle the clashing and contending of theories with practice, and to shed a lustre upon medical science with which it had never before been honored. It seems almost a necessary result, from the very nature of things, that a correct practice should precede the knowledge of a correct theory; or rather, that a correct theory must necessarily be proved or sustained by a sound practice. We have heretofore observed that Dr. THOMSON first matured his system of practice, and then framed his theory by it; and it matters little whether a theory be correct or not, if the practice be sound and efficacious. Dr. THOMSON's theory, however, was founded upon a few prominent features of his practice which, as he was altogether unaided by science, led him into errors: but they are of no practical importance. He found, for instance, that stimulating medicines are universally applicable in all cases of disease. All the articles of this class which he used produce a burning sensation in the mouth, and warm the whole system: hence he came to the conclusion that *heat* was the vital power or principle, and that its quantity in the body being diminished was the universal cause of disease. This hypothesis we have shown to be incorrect: but with his strength and originality of mind, had Dr. THOMSON been aided by the lights of science, we have little doubt that he would have adopted very nearly the views of Dr. CULLEN; we mean with regard to fever.*

Another peculiar trait in Dr. THOMSON's theory, is his speculation about *canker;* which he says is caused by cold. This canker, he thinks, is seated *inside*, and if a fever is kept up, it "will *ripen* and come off in a short time." "This idea," says he, "is new and

*We have heretofore spoken of Dr. Thomson's scattering all former theories as well as practice, like dust in the sunbeams: this alludes to diseases generally.

never was known until my discovery." But waving any further notice of these, and many other equally fantastical notions, which are the undoubted effects of a want of education, we will observe, that without this singular idea respecting canker, his method of treatment would have been incomplete. He would scarcely, under any other view of fever, have adopted his valuable class of astringent articles which he terms canker medicines; and without which any system of medical practice would be very imperfect.—In short, Dr. THOMSON's theory of fever, as well as disease in general, and of medicine, with such modifications as it will eventually get from science, we believe to be more comprehensive and correct, than any thing previously offered to the world; and may be regarded as one of the striking events of the age, as well as the most important innovation ever attempted in the science of medicine.

SECTION II.

OF INFLAMMATION.

THE theory of inflammation, in some of its features, bears a close resemblance to that of fever, whilst in others it is essentially different. Thus the increase of heat appears to depend upon the same cause in the one case, that it does in the other; whilst the effects of the remote cause of each is entirely different. In fever, the remote cause operates upon the whole system, producing an universal depression of the vital power; whilst in inflammation it may only affect a small part of the system, which it may do when the other parts are in comparative health. All extensive inflammations, however, as well as some which are confined to a small space, in their effects upon the body, weaken the living power, and thus produce a general derangement of the whole system.

Various theories have been proposed to account for the phenomena of inflammation. Nothing, however, has yet been offered to the world, and perhaps never may be, that is not liable to some objection, or which may not be, in some respects, palpably absurd.

The most commonly received theory of inflammation is, that it is caused by "an increased action of the blood vessels, propelling forward a greater quantity of blood than usual into the part affected, by which means its insensibility and irritability are increased, its vessels distended beyond their natural tone, and the circulation through them rendered more rapid." In this view, however, several things are assumed as facts, which scarce deserve the character of conjectures. This hypothesis pre-supposes the heart or arteries, to be possessed of a discriminating power, the one to send, or the other to convey, to the inflamed part, a greater quantity of blood than is usual or necessary. And even admitting that this

might be the case, the conclusion would seem irresistible that inflammation should extend through the whole length of the vessels which convey the blood; that is, that it should not be confined to any particular part, but extend the whole length of the artery, from the heart to its termination.

But there is another view of this subject, more difficult to reconcile with the doctrine under review. There is, perhaps, no one part of the system supplied exclusively by one single artery, but by the innumerable ramifications of several of them. Hence this discriminating power of furnishing an inflamed part with a superabundance of blood must reside in several different vessels, and which, if an increased quantity of blood had any agency in producing the inflammation, would be as likely to produce it on a large scale as a small one. Moreover, we have no evidence, says Dr. Good, that a mere accumulation of blood can produce that augmentation of heat which characterizes and gives name to inflammation. But there is not, in the whole science of pathology, one solitary fact recorded, having the least tendency to establish the proposition, that any more blood is propelled to an inflamed than to a healthy part.

If inflammation depended upon an increased action of the blood vessels, as is commonly supposed, this symptom should show itself first; whereas, it is secondary in its appearance. Local inflammation, assuming or admitting this as a fact, could not be a primary affection, but always symptomatic of previous deranged action of the vascular system.

That the "sensibility and irritability" of an inflamed part are increased there is no doubt: but that this is caused by the greater quantity than usual, of blood in the part, we think is incorrect. The blood is not possessed, so far as known, of either of those properties, termed sensibility or irritability. Therefore, admitting that there is a greater quantity of blood than usual in an inflamed part, it would not follow from that fact, abstractly considered, that the sensibility or irritability of the past was increased. But still this is the fact, in some sense. Both are owing to the derangement of action in the diseased part, but sensibility is increased to no other stimulus than that of mechanical pressure or violence. To the effects of the living stimulants, an inflamed part is less sensible than a healthy or sound one. Indeed, this seems to be the proximate cause of inflammation, the parts becoming less sensible of impressions from that vital stimulus which pervades, through the medium of the blood, every part of the body. Inflammation often takes place in a healthy state of the system, and hence if the part which is about to take on an inflammatory action has not become insensible to the vital influence, it could not possibly become inflamed.

Our argument on this point also derives support from the fact, that inflamed surfaces are far less sensible to impressions from

stimulants externally applied. Thus, if we apply a strong wash of cayenne pepper and vinegar or brandy to an inflamed part, it does not produce that sensible effect that it would to any other part which is free from disease, or to the same part when not inflamed. Here is what we conceive to be positive proof that the living sensibility is deficient. The morbid sensibility, or that tenderness to the touch, which often occurs in inflammations, is probably caused by the distension and loss of tone which inflamed parts often suffer during their progress to suppuration. It may be also observed, that the higher the inflammation the less sensible the part is to the effects of stimulus; whilst on the contrary, the more the inflammation is reduced, the more sensible it becomes to the operation of those substances.

We must also notice another feature in the popular hypothesis of inflammation. It is said that in consequence of the "greater quantity of blood than usual in the affected part, its vessels are distended beyond their natural tone, and the circulation through them rendered more rapid." Now unless it can be proved by satisfactory evidence, that more blood actually is conveyed to the part, which is only assumed without the shadow of evidence, and admitting that the vessels are enlarged, the circulation must be slower than in any other portion of the same vessels; or else there must be *less* blood in that than any other part of the same vessels. But admitting that the vessels are distended and the circulation more rapid, upon what principle can we account for the effusion of lymph and blood into the cellular tissue, which attends inflammations, especially those terminating in suppuration? This circumstance, as well as the swelling of an inflamed part, ought, in our opinion, to be attributed to other causes than a distension of the blood vessels.

A simple distension of the vessels of a part, would render such part soft and yielding, especially if the contained fluids were passing through them with greater facility, as they naturally would in such case. But we know, on the contrary, that an inflamed part usually becomes hard and firm.

We propose to account for the effusion as well as the hardness attending inflamed parts by supposing, in the first place, that the vessels are obstructed; that instead of being distended, they are contracted, their diameters lessened. The blood being driven on through the arteries, and meeting with these contracted vessels, it is, by the pressure which it receives from behind, forced through the walls of the arteries, thus producing what is termed effusion or extravasation. We think the reader will now anticipate the cause of the swelling and hardness to which we have alluded. It may rationally be attributed to the extravasation of the blood, or any of its component parts, as lymph or serum, in the cellular tissue of the inflamed part.

We also refuse our assent to the proposition that the diameters of the circulatory vessels are enlarged in inflammation, not only because there is no proof of it, but because it appears inadequate to account for the concomitant symptoms and effects attendant upon the complaint, and is also contrary to the nature of the animal economy. But it is inconsistent with a popular treatise to descend to minute particulars, and notice all the errors and inconsistencies with which the theory of inflammation has been burthened. We will, therefore, content ourselves with briefly putting forth our own views, accompanied by such remarks upon the opinions of others, as may be considered appropriate to the subject.

Our own ideas then, of inflammation, are briefly these; that it is caused by an obstruction in the circulatory vessels, and not, as some have thought, in a change of the fluids contained in them; because inflammation often occurs in persons otherwise in perfect health, whose circulating fluids are in a pure state; whilst the inflammatory process must be referred to some local cause acting exclusively upon the part inflamed. These local causes may be external violence, such as bruises or wounds, or they may depend upon some internal cause, of which we have no knowledge. But most certain it is, that the effect of this cause is to render the vessels incapable of performing their healthy actions, as we have heretofore observed, by contracting their diameters. But the blood being still driven to the part, and forced through these vessels with greater rapidity than in health, being a necessary consequence of their reduced diameter, an unnatural friction is produced, which upon our principle of accounting for the production of animal heat, will produce an increase of temperature in the part, which is the most universal characteristic of inflammation. This increased heat appears to have an influence upon the contractility of the arteries of the part affected, by which it is increased, and thus accelerates the transmission of blood through the diseased region.

Inflammation may be defined, a diseased or imperfect vital action, of some local part; the vessels of the inflamed region being incapable of performing their living functions; and so far as they fail in this, so far there is, in the diseased part, an approach towards death. Marvel not that we speak of the death of a part of the human body or organs. It has taken place in thousands of instances, under the name of mortification. And it seems to be a prevailing idea, that this occurs in consequence of the increased heat attending inflammation; for in proportion to the heat, will be our apprehension of mortification. But still the heat has no connection with it, as a cause; indeed, so long as the heat continues, there will be no mortification.

The fact is, that heat is an effect of the same cause which leads to putrefaction of living matter. An inability of the organs,

either wholly or in part, to perform their functions, is the first effect of all disease, and is equally the case in local inflammation. It is this inability of the vessels to perform their functions, which causes the heat of inflammation. As this inability of the vessels increases, their approaching death advances and the heat is augmented. Thus the increase of heat, and the incapacity of the vessels to perform their vital functions, go hand in hand, until their living action becomes utterly destroyed; when mortification or death of the part ensues, which puts an end to the production of heat and of inflammation.

We also object to the common distinctions of inflammation, such as healthy and unhealthy; considering all inflammations as being unhealthy, arising from an unhealthy action in the part inflamed. The circumstances which have given rise to this vague and unmeaning distinction are no other than a healthy or unhealthy state of the general system. Inflammations occurring in an individual in the full possession of health, will almost always terminate in a kind, healthy manner: whilst in others whose health is not good, and with a peculiar predisposition, or *idiosyncrasy*, they often assume forms of great malignancy or virulence. "The general principle of inflammation," says Dr. Good, "is the same in all;" the different kinds are only modifications of the same thing, arising from some peculiarity of the patient, or of the tissue in which the disease is located.

Neither can we accede to that doctrine which attributes the production of inflammation to an effort of the healing power of nature to drain the system of some foul humor, or in the words of Dr. Good, "a concentration of the constitutional complaint" at the inflamed point. How a man of the enlightened philosophy of Dr. Good, could subscribe to such doctrine as this, is incomprehensible. This is to suppose that disease is a host of inimical little beings, which are roaming at large through the system, and committing their depredations; or that it is some noxious matter pervading the body without any fixed principles, but which, at length, concentrates itself for a vigorous effort, and bursts forth in the heat and fury of its passion, in the form of inflammation.

But we have perhaps dwelt sufficiently long upon this subject; and although it is by no means exhausted, enough has been said to convey a general idea of the nature of that local state of the organs, denominated inflammation.

RECAPITULATION.

As we are now about to close the first part of our work, which embraces the general principles upon which the true science of medicine is founded; we here propose a brief recapitulation of the whole subject; in which may be seen at one view, as it were, the whole doctrine for which we contend.

1. We have endeavored to establish the fact, that life is a forced state, or in other words, that man is comparable to a machine which is kept in motion by the continual application of a moving power—that this power is drawn from food, drink, and air; the withholding of which from the body, for a very limited period, or a failure of any of the organs to prepare these materials for yielding this power to the system, produces death.

2. That this power is constantly wearing out; as the power of a steam engine having produced one stroke of the piston, is then exhausted, and the machinery must stop if the same power were not constantly being generated, a measure of which immediately supplies the place of that which was just spent. And, therefore, the living power must be regularly and constantly supplied to the animal machine, or disease and death will be the consequence.

3. That those substances from which the living power is drawn, after having yielded this power to the body, must be removed; which may be compared to the steam in the steam engine, which after having exhausted its force, must pass off to make room for the application of another supply of power, or the machine must stop.

4. We have shown that health, which it is the physician's object to preserve or restore, consists in the harmonious action of all the organs of the animal machine, which can only be preserved by a suitable supply of the living power, and by the constant removal from the body of the worn-out materials from which this power is drawn, thus keeping the system, pure and unincumbered with useless matter.

5. That disease is a diminution of the living power. That in every variation from a state of health, this power is always deficient and never in excess; because nature never produced or provided a power more than adequate to the accomplishment of her

objects. That the ultimate effect of disease is death, and therefore every stage of it is an advancement towards death, in which the living power is annihilated. That the only rational mode of cure is to restore the living power to its proper influence over the system.

6. We have pointed out the destructive nature and tendency of the medicines in common use with the mineral faculty, showing that their effect is to weaken the power of life, and thus assist disease in its destructive career, instead of opposing a barrier to its progress.

7. That medicines ought to act in unison and harmony with the laws of life; and that medicines of this character are only to be sought and found in the vegetable kingdom; and that such is the character, and such the source, of the medicines in common use by the most approved botanical practitioners.

8. We have endeavored to show that there can be no such operation of the system as is termed an effort of nature: the use of this expression is calculated to mislead the mind, and therefore ought not to be used. We believe that it is upon this erroneous view, that has been founded the truly incendiary practice of reducing or debilitating a sick patient, to cure a fever and many other complaints. But, that notwithstanding we have no faith in the common notion of disease being cured by an effort of nature, we still believe that there is a healing power in nature, susceptible of explanation in perfect harmony with our doctrine of passive nature.

9. We have pointed out the common indications usually considered by the mineral faculty, as necessary to answer in the treatment of disease; many of which we have shown to be erroneous. We have also pointed out the indications of cure relied upon in the botanic practice, showing that they are drawn from nature, which alone can furnish us with proper data to enable us to make correct deductions.

10. We have given our views of fever and inflammation; of which we think it not necessary to give a recapitulation.

END OF VOL. I.

TO THE PUBLIC.

When this volume was first put to press, we contemplated binding it with the practical part of the work, which follows in the second volume. Subsequent considerations however, induced us to change our mind, and make two volumes of it; from which we were only deterred, in the first place, by the suggestion, that dividing the work would render its appearance less respectable, on account of the smaller size of the books. To these views we then reluctantly acceded: but further reflection has induced us to forego these considerations, and bind the theoretical part, which treats of the true principles of the healing art, in a separate volume, from a belief that it would be more useful in extending the knowledge of the improved botanic system of medicine.

After the adoption of this arrangement, we came to the conclusion of publishing and binding with this volume, the following lecture by Dr. Robinson, being introductory to a course of Lectures, principally on the science of anatomy. It was originally contemplated to publish the whole number of lectures constituting the course, to accompany the present work; but as they were not finished in time to suit our purpose, and as a concise view of anatomy, physiology, &c. has been embraced in the present volume, we shall, at present, publish only the first lecture, which we here present to the public. The high character which Dr. Robinson has so justly acquired, will, no doubt, make it desirable that the whole number should appear; and, should circumstances hereafter, justify the undertaking, they will be cheerfully made public.

A LECTURE,

INTRODUCTORY TO A COURSE,

ON THE SCIENCE OF

LIFE, ORGANIZATION, &c.

BY SAMUEL ROBINSON.

TO THE READER.

THIS course of Lectures on the science of life and organization, is based upon the principles of "*Howard's Improved System of Botanic Medicine*," and was prepared with an eye to simplicity and conciseness. A popular and general view of the human system was deemed at once interesting and desirable to those who wish to devote a portion of time to its study. But there is a higher object in this concise development of the structure of Man. It is designed to impress upon his heart, love and gratitude to God for the possession of a *form so fearfully and wonderfully made:* And that his thankfulness be evinced by his *care* for a work, which is the *masterpiece* of all material things.

The man who loves God for his goodness, and himself as the image and glory of the uncreated Deity—HIS *public manifestation* and *representative below*—will be inclined to show all due care, to preserve in its *primeval beauty*, a *form so admirable.*

If we can excite in man, this love to God and to himself; this fervent gratitude for a being so noble, and supreme and elevated; placed at the head of the creation, as the sublime display of Jehovah's power and goodness—we shall then have placed medical science on a sure foundation. The invaluable endowments bestowed upon Man, preserved out of gratitude to God, that all his gifts may be improved in the best manner to his glory;

> "For God is paid when man receives;
> To enjoy, is to obey."

To enjoy life and all its blessings, and to exercise them according to the *law* of God, is to glorify him, and *honor* and obey HIM. And to preserve health with all due care, is essential to this enjoyment and obedience, and to that *honor* which we owe him for his distinguishing bounty. To value the giver by his gift, we require to have some right apprehensions of its extent and magnitude. The divine care in forming the parts of Man and the skill in putting them together, so bountifully impressed in the countless worth of the finished frame, we have endeavored to delineate with brevity and perspicuity. It is not to be expected, that a full detail, of every item of all the parts, of magnitude and minuteness, which enter into the sublime structure of majestic Man, can be here unfolded! But enough is done to render the subject clear,

and comprehensive, and it is believed that the subsequent work will prepare the *mind* to move with *care* and knowledge in the administration of medicines to recover health; and, that a system of excellence and exquisite beauty is disclosed, in terms sufficiently conspicuous, to show that food, and nourishment, and remedies, should be administered, to preserve its harmony, and health, and sustain its being. It will be a consolation for many sorrows, to be engaged in filling up the plan of the *benevolent* RUSH—placing medical knowledge within the reach of the people. Some may demur—thousands will be saved; and

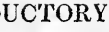
"Gentle Health her golden wings expand."

The tyrant, Dionysius punished Philoxenius for singing, and Plato for disputing, better than himself. If better remedies arrive than those which have been in general use, I am willing to bear freely the portion of the evil which may be ascribed to me. It is not the lot of man to pass without rebuke—but "*Quid de me alii loqantur*," *&c.* What others say of me, let them beware.

SAMUEL ROBINSON.

CINCINNATI, *March* 1, 1832.

INTRODUCTORY LECTURE.



The pre-eminence of medical science, furnishes a sublime object on the general map of human knowledge. It comes to the mind recommended by all the felicities of life, by the joys of existence and the great sum of human happiness, and human power, in the world below.

Could it reach that lofty eminence, and proud distinction of other sciences, called perfect, to cure our diseases and heal our pains without fail, how great would be the enjoyment of life, and how vast the sum of human blessing! At this noble object it *aims;* and we shall not despair, but here it will arrive at last.

The humble and industrious mind, led by the Deity, and improved by the indications of his works, may yet attain to that perfection of knowledge in medical wisdom, which shall render *life* a general blessing, and *death*, the dissolution of a tabernacle worn out by time and exhausted by slow decay.

It shall be our duty and determination that what re-inforcement we may obtain from hope, shall not be lost by irresolution or despair The mind was made for victory; and he that overcomes, shall wear the victor's crown.

In this sublime scene of human knowledge, to pursue our course with success and certainty, we must keep in view, the operations of that mysterious power, which the Deity has placed in the living system, to repair and renovate its energies, when shattered by accident or worn down by disease.

If, in the end, we must "bow to the great teacher Death, and God adore;" let us in life bow to the great *teacher*, the *vis medicatrix*, and learn lessons of medical wisdom, which the Deity has thus placed before us in the mighty volume of his works! By the right use of reason, our success in the pursuit both of knowledge and of happiness depends. And by it, man is distinguished from the beasts that perish, in the most essential characteristics of his nature.

When it was found that a wound, merely bound up and a little cold water poured on it, healed better and quicker than by all the labored application of pompous surgery; the people thought there must be a charm in the water, or magic in the words.

It was the simple application of reason to the process and operations of nature herself: her short and easy method of uniting her separated points, and repairing her broken texture, fell upon the mind with that conviction, which never more can be resisted.

When clear and certain knowledge cannot be had, even in the dark, the mind is not left to grope like the blind. No; the mind is her own light, and life, and power, and penetration. She carries with her into the region of darkness, that inextinguishable *torch* of *reason*, which the Deity has bestowed upon her—and there finds a path to the conclusions of wisdom and the temple of truth.

The subject of MEDICAL BOTANY, like every other science, may be branched off to infinity; but the nature of this particular scheme, and the single point of view, which we intend shall limit our researches, demand particular illustration. And it is due to that deference, which every man owes to public opinion, to state fairly and fully, the reasons which induce him to establish or promote a new system.

Mr. HOWARD was agent for Dr. THOMSON. He was drawn unwillingly into that agency, as he was already embarked in public business. But being once engaged, he entered with all his mind and strength, into the prosecution of an object, which he conceived to be of immense value to the human family.

He had originally pursued the study of medicine, for the purpose of practice; but declined, from the dangerous tendency of the medicines in common use. On the trial of this new system of practice, he was convinced of the great safety and utility of the botanic medicine and method of operation.

In order to diffuse its blessings, he entered largely into the duties of his office—encountered vast toil, exposure, and expense, that he might bring it into general notice; while he was thus conscientiously and earnestly employed, jealousies were stirred up in the mind of Dr. THOMSON, by interested persons, from motives that were not good, as he verily believes. The result was, Dr. THOMSON suddenly revoked his agency, and arrested his career in the full tide of his usefulness and rapid approach to the goal of his most ardent hopes and expectations. He was here brought to a full pause—What was his duty?—His friends urged him to go on—strangers urged him to go on—the monitor within urged him to go on and do good!

The more he weighed and examined the subject, the more he was convinced of the absolute duty and propriety of prosecuting the practice with vigor. The system of medical botany was in its mere infancy; it could not so remain. No system is stationary—It must advance—and if he did not advance it, it would be seized by some sciolist, who neither had the skill nor experience to which he might modestly and justly lay claim.

He therefore, now, for himself, organizes this system of medical botany, on distinctive principles, of great utility, and superior interests to all laboring under disease, and yet so as not to infringe on the rights or interests of any living man—as may be seen by an examination of the work itself, now presented in its order, arrangement, and its abundant, and original matter.

It is a delicate matter to do any thing that may even appear to be wrong. Mr. HOWARD is, therefore, anxious, as every good man ought to be, that the public should be perfectly satisfied on this point; and perceive that he has truth and justice to sustain him with a desire to benefit the human race—and leave behind him, if the Deity will please to grant him that distinction, the name of—FRIEND TO THE HUMAN FAMILY!

Mr. HOWARD belongs to that society so famous for its practical wisdom and general benevolence—the society of Friends. And this itself, is a high recommendation in the opinion of good men. But there is another incident in Mr. H's history which is a matter of judicial record, and ought to have a prominent place, wherever his motives may be questioned or his integrity doubted.

In his youth he was left in possession of a considerable amount of property, constituting the principal part of his inheritance, which he subsequently came to the deliberate conclusion was incompatible with his duty to retain. And in resigning his right he had no applause—no eulogy, nor note of fame to cheer him to his duty—nothing save the "still small voice" of conscience, and the living oracles of his God.

And these were great, you say—they were great indeed! but in the time of which I am speaking, they were overwhelmed by the noise, and pomp, and fashion of the world.

He was then young and without experience; and yet listened to the voice of the counsellor, "*whatsoever ye would that men should do to you, do ye even so to them.*" One whose path in youth, has been so distinctly marked by obedience to the divine will, in opposition to the fashions of this world and the treasures of Egypt, will not now be left in his age, weary and old with service, to the overshadowings of a conscience, darkened by dereliction.

A fortune was here sacrificed in the morn of life, from love to his fellow men. And should it be regained in the evening of his days, by the unwearied effort of doing them good, will it be regarded unkind or disreputable?

It is also justice to Mr. Howard, to mention, that he does not assume any merit to himself for the sacrifice which he has made; nor does he, by any means, reflect upon others who have not felt it their duty to follow his example. He himself is a native of one of the southern States, and he well remembers, when he himself believed it right, to hold this kind of property: he believes that his own parents, who never divested themselves of it, were pious

persons; and he has ever felt charitable towards those who still continue to possess it. He believes that this subject must be left to the people of the southern States, to dispose of, under the guidance of Divine Providence, who is able to effect his own purpose in his own way. And he has therefore, ever believed it to be his duty to discourage all illegal and improper interference in this delicate matter: and the liberality of his general course has been such as to procure for him the friendship of his fellow citizens; the confidence and patronage of the Government of the United States, for many years, and subsequently the patronage of the Legislature of his adopted State, which continues to the present time.

It was the general opinion which was entertained of his character, and his large acquaintance over the United States, which induced Dr. Thomson, and the friends of his system generally, to insist on Mr. Howard's taking the agency and drawing his attention from his other interesting concerns to the diffusion of the knowledge of the Botanic System of medical practice: which agency he lost, through misrepresentation and jealousy, as shall be more fully developed hereafter. It is therefore, but an act of justice to him and the public, as he is now presented before them as the proprietor of the *Improved System of Medical Botany*, to state these facts—that this course of things was forced upon him—that he was unwillingly wrung from the public business in which he had been long engaged, to attend to the agency of Dr. T.—that after he had incurred vast expense and loss in the pursuit of this agency, it was improperly taken from him—that the system itself was so good and invaluable and so susceptible of improvement and cultivation, that he considered it his imperious duty to devote himself to its prosecution and perfection. To this duty he believes himself most solemnly called by the voice of God and his country; and to it now he freely devotes his labor and his life.

We believe and trust, when the whole matter is fairly weighed, so far from censure he shall receive applause; and be cheered on his journey to the consummation of his benevolent purpose. And as men are not only ingenious to find fault but also to discover truth, a few reflections may serve to direct the train of their cogitations.

It may be proper to remind them, that the infancy of a system, if truth and utility have stamped their seal upon it, cannot remain—it will not perish there—it must advance—the common sense and necessities of the world demand a progress to perfection. The first steps in the entrance of any subject, can give but little intimation how, or where, the path may terminate. From the first links in that immense chain of scientific discovery—extending from the Priests of Memphis to Newton and La Place—how many were they who labored on the fabric, or toiled in the construction of the intermediate parts? And yet all were useful and perhaps necessary to the perfection of the structure; for even the errors which

obtained in the operation, were turned to the advantage of the system, and served to render astronomy, at least, the most certain and best established of the sciences.

It is delightful to trace, even in thought, the progress of scientific knowledge; but how much more, its benignant and beneficent results.

From the first feeble efforts which mark its infancy, to those majestic and matured systems, which have been strengthened by discovery and established by time, there is a mighty and impressive admonition. It is the solemn voice of eternal Providence, urging us to perseverance. To buckle on the armor of truth and press on to the portals of eternal wisdom.

On this path Mr. HOWARD is now determined to advance. The necessity is obvious; the call is urgent; the prize is human life; and the reward—it can only be measured by him, who regards the approbation of a good conscience, beyond all earthly inheritance.

Although the curative art may never be raised to a level with the certainty of the physical science of the Newtonian school, yet, it may reach a state of safety if not certainty; and it gives high and early promise of speedily attaining that distinguished elevation, by this new mode of practice, that the patient will not be injured, if he cannot be cured.

And this is no slight recommendation to those, the least conversant with the history of medicine and disease. The fundamental principles which ought to govern in all cases, in the treatment of the sick, are, that as their peculiar temperament and sympathies cannot be certainly known; the medicine given should be certainly ascertained—both in quantity and kind—to be perfectly innoxious to the system, and safe from all injury or detriment to its organs. And there is, most certainly, in the abundant store house of Jehovah's goodness, medicines which can rouse the energies of nature and repair the injuries of diseased or inert organs, without wasting their vitality or ruining their structure.

From a deep and powerful conviction of this important truth, and a hope that the sublime discovery of an antidote, powerful in banishing the dread and danger of disease, may be established by his labors, Mr. HOWARD has been impelled forward in the course he now pursues. To God and to his country he commits his cause with confidence, fearless of the result, and faithful in the exhibition of his reasons and designs. The issue cannot be doubtful, when the foundation rests on the basis of truth.

Knowledge on every subject, is the common inheritance of man. And he who would appropriate it, in any of all its branches, to the use of an individual, makes an attempt, at once preposterous and wicked.

The vital air, or Heaven's holy light, taken from us, would not be more injurious, than to rob us of the right of pursuing know-

ledge wherever she may lead us, through the boundless empire of the Almighty.

And we rest assured, on this infallible conclusion—that whoever disputes it, there exists in his mind, a total incompetency for enlarged views, or profound combinations on any subject, either of science, or practical affairs.

All his researches must terminate, like BUFFIER's madman, who could never see beyond the end of his logical syllogism. They are compelled to end in smoke and ashes.

When we speak to wise men, a single word unseals the fountain of thought and lays open the necessity of the cause; a necessity which springs from the condition of man; and not from the dictates of his voluntary power.

If any man could demonstrate that the science of medical botany, must ever remain precisely in the situation and order in which Dr. THOMSON placed it—he would furnish one of the most sublime arguments of the *reductio ad absurdum*, which ever appeared in the world!

The old axiom, that all reasonings were *ex præcognitis et præconcessis*, would be swallowed up and perish in this overwhelming flood of new and inaccessible light. The original principles and laws of human belief—the whole stamina of human reason—must be swept away, before we can conclude that any man is not bound to advance science, to reach the perfection of knowledge, as near as his means and powers may attain, or his opportunities may enable him.

Mr. HOWARD asks only this concession, for all the purposes he has now in view, in appearing before the world, as the proprietor of this improved and advanced system of *Botanic Medical Practice*—and he hopes it will not be unreasonable in him, to presume, that the practice in his hands, will deserve all the credit, and obtain the confidence which he claims for it. He has, already, had sufficient experience, to speak with the assurance of one who knows his theory, and has tested it by the most rigorous and indubitable experiments.

What he claims from public confidence, he humbly hopes, he can accomplish. The vain boast of untried hypothesis, can have no place in the stern decisions of the patient experimentor—who has seen disease baffled by the power of his art.

Mr. HOWARD will finally add, that he is neither afraid to fail through defect in the justice and goodness of his cause, nor the weakness of his premises, nor the *vis consequentiæ* of his conclusions. But for the satisfaction of those who may not have the means of viewing the whole subject in its true light, he has advanced these considerations

And he might justly state the powerful appeals to his sympathies, and his love to humanity, not to abandon the prosecution of the

system. The entreaties and the loud and general call upon him, to continue his exertions, which, were he to state them all, might appear fabulous, or false; and which, as yet, memory could not supply half the amount of the reality. He therefore refers to the fact in a general manner, as another inducement to gratify at once his own sympathies and the wishes of the people.

I.—This New Practice, as now established, will connect with it, a Scientific Compendium, of the curious and beautiful structure of Man. The distinct and subordinate power of the parts, their particular and general uses, the separate and combined action and agency of the whole, forming one grand and amazing system of incomparable wisdom and infinite goodness.

When medicines, good in themselves, are combined with wisdom and intelligence in the administration, how vast the amount of confidence and complacency established in the mind! Whatever is done in the dark, carries suspicion in its very aspect, and perhaps, death concealed in its bosom!

"Put out the light—and then—put out the sight!"

The poet has most beautifully and forcibly conceived how necessary darkness is to all the deeds of evil and the purposes of sin. But the light—oh! the light, is associated with every thing great and good and glorious in this world, and beyond it.

"Eternal Light!—Eternal Light!
"How pure the soul must be
"Who dwells within the dazzling Light
"Of vast Eternity."

The intellectual vigor—that *animo præsenti et acri*, which belongs to all well formed and active minds, absolutely require, in order to be satisfied, an entrance into the interior structure of man—a view and presence and immediate knowledge—with all the variety and of all the truth of the inward parts. We love to follow up conclusions, by their practical results, and pursue objects to the boundaries of thought, and walk by the light of reason, when the lights of nature fail!

It was a beautiful remark of that sage, who said "I would rather perform one good act with my reason and conscience, than an hundred by accident—for a fool might do the same."

The better we understand what we are about, the nearer we approach to the likeness of Him who dwells in light ineffable. Milton's fallen spirits seemed to be confounded at nothing more than the awful depth of that unutterable and eternal darkness into which they had fallen.

———"Farewell happy fields,
Where joy forever dwells! Hail horrors! Hail
Infernal world! and thou profoundest hell
Receive thy new possessor!"———

This is the language of utter darkness and undying pain! Light, therefore, as the great gift of the Father of Lights—shall be through-

out this subject, as far as it is practicable, in an improvement, at once concise and comprehensive; extending to an infinite variety of parts, and converging to one profound and grand conclusion—the health of the whole system.

The Greek geometers and Roman civilians, have left behind them immense and amazing piles of logical reasoning and profound science—the former being based on nature, remains unshaken and will remain; but the latter, although their systems be reasoned out by a most admirable ingenuity—yet, being founded on artificial ranks of society, and false principles of government, are hastening fast to destruction, and utter ruin.

How can they stand, when all the artificial ranks of society on which they were founded, are threatened with annihilation? The labor and time wasted on them will stand a curious monument of the efforts of man to establish systems on reason alone. Their fate often reminds us of the remark of a learned physician respecting his own profession—"Labored, but not improved; studied, but not advanced; multiplied, but weakened; enlarged, but rendered more defective and uncertain."

All superstructures which have not their foundation in nature, but in the pride and vanity of man, must dissolve, and

"Like the baseless fabric of a vision—leave not a wreck behind."

To reduce and simplify practical subjects to the laws and principles established in nature, would seem now to be the design and aim of every good man. One king is now pleading for the rights of his people, and though another be trampling them down, the decree has gone forth; and the temple of pride—the whole pile of human mockeries, is tottering on its foundations, and will shortly bury in its ruins all who will not abandon its profanity; leaving nothing behind but the memory of its crimes and the jubilee of its eternal destruction.

So passes away the follies of the world! And good it were, if we turn them to that useful account which wisdom always finds in the vicissitudes and revolutions of time. To a wise man nothing passes by unheeded or unimproved. Like a traveller on a journey through a foreign land, he marks down every object and every event, that he may return to his country improved by knowledge and replenished with lessons of practical wisdom.

A physician, approaching his patient, inquires into the nature of his symptoms, state of his disease, feels his pulse, and prescribes his medicine. How will this medicine operate? What will be its influence on that wonderful mechanism, which it puts into action behind the scene?

These questions can only be properly and safely answered by the certain knowledge, that the remedy administered will not add new impediments to life. And if by a sudden shock, one organ

should be relieved, an hundred others may not be embarrassed and impaired. Three, or five, or seven different substances compounded—whose chemical affinities and repulsions are not even known—how should their operation on the living subject be ascertained? The least that can be said for a random practice, is, that it should be careful to do no evil.

Reasoning, set in opposition to the laws of nature, resemble the School Theology. In attempting to find out the truths of scripture by the power of syllogisms—at the end of ten centuries of untiring labor, all the difficulties remained as they were—neither enriched by a new discovery, nor embellished by one single additional idea.

The labor of ages perishes, before one single principle of truth. A general maxim, properly established, is of more value than ten thousand of those small arguments which spring from the dreary confusion of a benighted intellect.

General principles may fail in particular cases, but they must always prevail in the general course of things; a general remedy, well established by practice, may likewise fail in a particular instance, and yet its general utility remain unbroken.

"When I was young, and became enamored of truth," said Tully, "It appeared to me so amiable and convincing, that I thought I could persuade all to adopt it: but now when I am old, and have some experience, I find its intrinsic loveliness not sufficient to establish it in the soul of man: Not that truth has lost its influence or its value; but the hope is lost, of making it succeed by its own merits alone."

And by what power, do you ask, would he make it succeed, if not by its own merits? By making it the interest of the party that it should succeed! This is now required in the progress and success of the New System of Medical Practice. Let your interests persuade you to make the trial, and your safety will hasten the decision.

GLOSSARY,

OR EXPLANATION OF THE PRINCIPAL TECHNICAL TERMS USED IN THIS VOLUME.

Anatomy, The dissection or dividing of organized substances, to expose the structure, uses, &c. of the parts.

Absorbents, 1. The small, delicate vessels which suck up substances from the surface, or from any cavity of the body, and carry them to the blood. 2. Medicines which destroy acidities in the stomach, &c. 3. Substances which have the faculty of withdrawing moisture from the atmosphere.

Absorption, The taking up of substances by means of the absorbents.

Artery, A membraneous pulsatory canal, through which the blood passes from the heart to every part of the body.

Abscess, A tumor containing pus, as a boil, or other swelling.

Abdomen, The belly.

Albumen, Coagulable lymph, similar to the white of eggs.

Acrid, Sharp, pungent, corrosive, or heating.

Acid, That which imparts to the taste, a sharp or sour sensation.

Alvine. Relating to the belly, or intestines; hence the stools are termed the alvine discharges.

Asthenic, Diseases arising from debility, are thus termed by Dr. Brown.

Antispasmodic, That which removes, or tends to prevent spasms.

Astringent, That which corrects looseness and debility, by rendering the solids denser and firmer, known by its puckering effect upon the mouth.

Antacid, That which destroys acidity.

Anthelmintic, That which procures the evacuation of worms, from the stomach and intestines.

Anodyne, Any medicine which eases pain.

Antidote, A preservative against, or a remedy for, disease, and particularly for poison.

Autocrateia, The healing power of nature.

Aliment, Food and drink.

Atmosphere, The elastic, invisible fluid which surrounds the earth; commonly called the air.

Aorta, The great artery of the body, which arises from the left ventricle of the heart.

Auricle, A name given to those parts of the heart which resemble small ears, and commonly called deaf ears.

Botany, That part of natural history which relates to the vegetable kingdom.

Bile, (or *Gall*,) A bitter fluid, generally of a yellowish brown color, secreted in the glandular substance of the liver.

Chemistry, Is that science which teaches how to ascertain the nature of material substances, and the different parts of which they are composed, as well as the various effects &c. which the union of different substances produce.

Caloric, The chemical term for the matter of heat in its latent or unperceived state.

Cartilage, A white elastic substance, which serves to facilitate the motions of the bones, and to connect them together—often called gristle.

Capillary vessels, The very small blood vessels.

Carbon, The chemical name for purified charcoal.

Carbonic acid, Fixed air, compounded of carbon and oxygen.

Cathartic, That which produces purging of the intestines.

Caustic, A burning application.

Chyme, Food partially digested in the stomach.

Chyle, A white milky fluid, separated from the chyme after the latter has passed from the stomach into the small intestines.

Constipation, } An obstruction, or preternatural slowness of evacuations
Costiveness, } from the bowels.

Cutaneous, Belonging to the skin.

Corrosive, That which has the quality of eating or wearing away substances.

Constriction, A drawing together, or contraction.

Congestion, A collection of blood, or other fluid, which produces a gradual swelling of the part.

Coma, } A strong propensity to sleep.
Comatose, }

Convalescence, The state of returning health after sickness.

Contagious, Diseases that may be communicated from one person to another, as small pox, measles, &c.

Convulsion, A violent contraction of the muscular parts by spasms; often applied to fits.

Clinical, Appertaining to observations or practice at the bed-side of the patient.

Cupping, Drawing blood by means of scarification and a cupping glass.

Chronic, A term applied to diseases of long continuance, and mostly without fever.

Clyster, (or *Glyster*,) A liquid substance injected into the lower intestines.

Canker, Small eroding ulcers, generally covered with a whitish slough.

Cerebrum, } The brain.
Cerebellum, }

Cerebral, Appertaining to the brain.

Cellular, Consisting of cells, or reservoirs.

Cutis vera, The true skin, which is covered by the cuticle or outward skin.

Diaphragm, A muscle separating the chest, or thorax, from the abdomen, or lower belly: the midriff.

Digestion, The process of dissolving aliment in the stomach &c.

Diffusible, A substance that may flow or be spread in all directions.

Diaphoretic, That which, from being taken internally, promotes perspiration, or discharges by the skin.

Diuretic, That which, by its internal application, augments the flow of urine from the kidneys.

Diluent, Substances which increase the proportion of fluid in the blood.

Discutient, That which possesses the power of repelling, or dissolving tumors.

Diathesis, Any particular state of the body.

Diarrhœa, Purging or flux. A frequent or copious evacuation of excrement by stool.

Dyspepsia, Indigestion.

Decarbonizing, Depriving of carbon.

Demulcent, Any medicines which lessen acrimony, or blunts the effects of sharp medicines.

Delirium, An alienation of mind, or wandering of the senses, caused by the violence of fever.

Deliquium, A medical term for swooning or fainting.

Drastic, Powerful; acting with strength and violence.

Drupaceous, A term applied to any pulpy fruit, having a nut or stone, with a kernal, as the peach, cherry, &c.

Duct, A small tube or vessel, by which fluids are carried from one part of the body to another.

Duodenum, The first portion of the small intestines.

Emmenagogue, That which tends to promote menstrual discharges.

Emunctory, Any organ of the body which serves to carry off excrementitious matter.

Emetic, A medicine which provokes vomiting.

Empirical, Pertaining to experiments; using without science; quackery.

Emollient, That which softens and relaxes the solids.

Enema, (see *Clyster*.)

Endemic, A disease that is peculiar to a certain class of persons, or country.

Epidemic, A contagious or other disease that attacks many people at the same season, and in the same place.

Epidermis, A thin membrane covering the true skin. The scarf-skin.

Epispastics, Applications which attract the humors to the skin; blistering.

Epistaxis, Bleeding at the nose.

Ephemera, A fever consisting of but one paroxysm.

Epigastric region, That part of the abdomen that lies immediately over the stomach.

Excrement, The alvine fæces, or stools.

Excretory ducts, Little vessels in the fabric of glands.

Exhalents, Small vessels which carry off the excrementitious, worn-out matter, from the system.

Expectorant, Medicines which increase the discharge of mucous from the lungs.

Exhibition, The act of administering medicines.

Exanthematic, Eruption and redness of the skin.

Exacerbation, An increase of febrile symptoms.

Extravasation, A term applied to fluids which are out of their proper vessels.

Errhines, Medicines which, when applied to the membranes of the nose, excite sneezing, and increase the secretion.

Element, First principles; a substance which can be no further divided, or decomposed, by chemical analysis.

Eructation, The act of belching wind from the stomach.

Escharotic, Caustic; corrosive.

Fauces, The back part of the mouth.

Fæces, Excrements discharged from the intestines.

Febrile, Pertaining to, or indicating fever.

Fomentation, A sort of partial bathing, by applying flannels, dipped in hot water, or medicated decoctions, to any part.

Fluid, That which has the quality of flowing; a liquid.

Flatulency, Windiness in the stomach and intestines.

Fumigation, The application of fumes, or vapors, to destroy contagious effluvia, in rooms, &c.

Friction, The act of rubbing the surface of one body against that of another.

Gas, A permanently elastic aeriform fluid.

Gastric, Appertaining to the stomach.

Gastritis, Inflammation of the stomach.

Gland, In *anatomy*, means, a distinct, soft body, composed of blood-vessels, nerves, and absorbents, and destined for the secretion or alteration of some peculiar fluid.

Hemorrhoids, The piles.

Hemorrhagy, A flux of blood proceeding from the rupture of a blood-vessel, or some other cause, other than external injury.

Humoral, Pertaining to, or proceeding from the fluids of the body.

Hypogastric region, The lower part of the abdomen.

Hypocondriac region, The spaces in the abdomen that are under the cartilages of the spurious ribs.

Idiopathic, This term is applied to such diseases as exist independent of all other complaints, in contra-distinction to those which are symptomatic.

Idiosycrasy, A peculiar temperament or constitution of the body, which renders it liable, under certain circumstances, to a particular disease, which other persons under similar circumstances, would not be subject to.

Integument, The covering which invests a body, or some particular part of a body, as the skin, nails, &c.

Intestines, The convoluted membraneous tubes, situated in the cavity of the abdomen, vulgarly called guts.

Jejunum, The second portion of the small intestines, so called because commonly found empty after death.

Lacteals, The vessels which absorb the chyle from the intestines, and pour it into the thoracic duct.

Lachrymal, Of, or appertaining to, tears, or the glands by which they are secreted, &c.

Lesion, A hurt; wound; injury.

Ligament, An elastic and strong membrane, connecting the extremities of the moveable bones.

Lithontriptics, Substances which possess the power of dissolving gravel, or stone, in the urinary passages.

Local, Belonging to a part and not to the whole.

Lymph, A colorless fluid, separated from the blood, and contained in certain small vessels, called *lymphatics*.

Lobe, A part or division of the lungs, liver, &c.

Loins, The small of the back.

Lumbago, A rheumatic affection of the muscles about the loins.

Lumbar regions, The loins.

Lungs, Two organs situated in the chest, by means of which we breathe.

Materia Medica, That branch of medical science, which treats of the nature and properties of substances employed for the cure of diseases.

Mania, Raving or furious madness.

Membrane, A thin, flexible skin, serving to cover some part of the body.

Mediastinum, A membranous partition, which divides the cavity of the chest into two parts.

Metaphysics, The science of the mind; relating to the mind, or immaterial things.

Miliary, A disease accompanied by an eruption of the skin, resembling millet seeds.

Morbid, Diseased, sickly.

Mucous, A slimy, ropy fluid, secreted by the mucous membrane.

Muscles, The organs of motion consisting of fibres, or bundles of fibres, inclosed in a thin cellular membrane.

Narcotic, A medicine which has the power of procuring sleep, by stupefaction.

Nausea, An inclination to vomit, without effecting it; also, a disgust of food, approaching to vomiting.

Nerves, Long white cords, originating in the brain and spinal marrow, and extending throughout the whole body, serving as the organs of sensation, &c.

Nitrogen gas, An elementary, gaseous fluid, incapable of supporting animal life; composing about four fifths of the atmospheric air.

Nosology, The arrangement of diseases in classes, orders, genera, species, &c.

Œsophagus, The tube through which the food passes from the throat into the stomach.

Organ, A part of the body capable of performing some perfect act or operation.

Oxide, A substance formed by the union of oxygen with some other material; thus, rust of iron is a *red* oxide of iron; the scales about the anvil of a blacksmith are a *black* oxide of iron, &c.

Oxygen—Oxygen gas composes about one fifth of the atmospheric air. It was formerly called vital air, because it appeared to be the only part which exercised any stimulant effect upon the living power. It appears to be absorbed or consumed in the combustion or burning of fuel; and its absorption by cider, and other liquids, produces vinegar, and is hence called the principle of acidity, &c. &c.

Pathological, Relating to disease or a diseased state.

Pathology, The doctrine of diseases.

Pallor, Paleness.

Pancreas, A soft, supple gland, situated in the lower part of the abdomen, which secretes a kind of saliva, and pours it into the duodenum.

Pancreatic, Pertaining to the pancreas.

Paralysis, Palsy; the loss of the power of muscular motion.

Paroxysm, 1. An obvious increase of the symptoms of a disease which lasts a certain time and then declines. 2. A periodical attack or fit of a disease.

Papillæ, 1. The nipple of the breast. 2. The fine terminations of the nerves.

Peristaltic, The vermicular (worm-like) motion of the intestines, by which they contract, and propel their contents.

Physiological, Relating to the living state, or more especially to the laws and actions or operations of living bodies in a state of health; and in this sense is opposed to a pathological or diseased state.

Physiology, That science which treats of the phenomena proper to *living* bodies.

Physical, (In the sense in which this word is used in the foregoing work, means) Pertaining to *material* things, as opposed to things *imaginary*, or *immaterial*.

Phytotomy, (or *Phytology*,) A discourse or treatise of plants, or the science of plants; vegetable anatomy.

Pharynx, The muscular bag, at the back part of the mouth, which receives the masticated food, and conveys it into the œsophagus, or gullet.

Philosophy, Is an investigation of the causes of all phenomena both of mind and matter. [It has various other definitions.]

Perspiration, Evacuation of the fluids of the body, in the form of vapor, by the pores of the skin.

Plethora, 1. An excessive fulness of vessels, or a redundance of blood. 2. A fulness of habit or body.

Pleura, A membrane which lines the internal surface of the thorax or chest, the inflammation of which is termed pleurisy.

Præcordia, The forepart of the region of the thorax.

Predisposition. Previous inclination.

Proximate, Nearest; next. A *proximate cause* is that which immediately precedes and produces any particular effect.

Priapism, Continual erection of the penis.

Primæ viæ, The first passages; the stomach and the intestinal tube.

Ptyalism, An increased secretion of saliva from the mouth.

Purgative, That which increases the intestinal discharges by stool.

Pus, Matter; a whitish, cream-like fluid, found in inflamed abscesses, or on the surface of sores.

Pustule, A small pimple, or eruption on the skin, containing pus.

Putrefaction, The spontaneous decomposition of such animal and vegetable matters as exhale a fœtid smell.

Pulmonary, Appertaining to the lungs.

Refrigerant, A medicine which allays the heat of the body or of the blood.

Respiration, The act of breathing.

Retching, Straining to vomit.

Rubefacient, A substance which, when applied a certain time to the skin, induces a redness without blistering.

Saburrhal, Relating to foulness of the stomach.

Salivation, An unusual secretion and discharge of saliva, usually produced by mercury, for the cure of disease.

Saliva, The fluid secreted by the salival glands and poured into the mouth; spittle.

Salient, Springing; starting; darting.

Salt, in *chemistry*, this term is used to denote a compound, in definite proportions of acid matter, with an alkali, earth, or metallic oxide.

Sanguiferous, Conveying blood; as, for example, the blood-vessels, are termed the sanguiferous system.

Sebaceous, Made of fat.

Secretion, The act of producing or separating from the blood substances different from the blood itself, or of any of its constituents, as bile, saliva, &c. &c.

Sedative, A medicine that moderates muscular action, or animal energy, particularly checking the circulation of the blood.

Sensorium, The brain is so called because it is the organ of all the senses.

Serum, 1. Whey. 2. The fluid which separates from the blood when cold and at rest.

Sciatica, A rheumatic affection of the hip joint.

Scirrhus, A hard tumor commonly situated in a glandular part, and often terminating in a cancer.

Sesamoid, This term is applied to the small bones sometimes found at the joints of the great toes and thumbs.

Sialagogues, Medicines which excite an uncommon flow of saliva.

Spasm, Cramp, or convulsion.

Spinal, Pertaining to the back-bone.

Stertor, Loud and difficult breathing.

Sthenic, A term used by Dr. BROWN, to denote an inflammatory state of the body, arising from an excess of vigor.

Stimulant, } Medicines which excite the action or energy of the system.
Stimuli, }

Subclavian, Situated under the clavicle, or collar bone.

Subcutaneous, Under the skin; a name given to some nerves, vessels, glands, &c., which are very near the surface of the body.

Stranguary, A difficulty in voiding urine, attended with pain.

Suppuration, The process by which pus, or matter, is deposited in inflammatory tumors.

Syncope, Fainting or swooning.

Synocha, Inflammatory fever.

Syphilitic, Pertaining to the venereal disease.

Tendon, The white and glistening extremity of a muscle, by which it is attached to the bones.

Tepid, Lukewarm.

Tetanus, The cramp; fits.

Thorax, The chest.

Tissues, The textures which compose the different organs.

Tinnitus aurium, A noise, or ringing in the ears.

Tonics, Medicines that increase the strength or tone of the animal system.

Topical, Local; confined to some particular part.
Torpid, Numb; stupid; inactive.
Transpiration, The exhalation of fluids from the pores of the skin, or lungs; perspiration.
Trachea, The wind-pipe.
Trunk, The main body of any thing.
Tube, A pipe; a cylindrical vessel which conveys a fluid, or other substance.
Typhoid, Resembling typhus; weak, low.
Umbelliferous, Bearing umbels, that is, flowers resembling in their form, an umbrella, such as the parsnip, fennel, &c.
Umbilical, Pertaining to the navel.
Vapor, Steam; an elastic, moist fluid which is thrown off from wet substances, by the application of heat, and which may be brought back to a liquid or solid state by cold.
Vapor bath, A place for applying vapor to the body.
Vegetable, A plant.
Veins, Vessels which return the blood to the heart.
Venous, Pertaining to the veins.
Vena cava, This term is applied to the two large veins through which the blood is poured into the heart—the one from the head, and the other from the lower extremeties.
Ventricles, The two cavities of the heart, which propel the blood into the arteries.
Vertigo, Dizziness; giddiness of the head.
Vessels, In anatomy, are the the tubes or canals which contain, or convey the fluids, from one part to another.
Vis medicatrix naturæ, The healing power of nature in animal bodies.
Viscera, The plural of viscus, a name commonly applied to the organs contained in the thorax or abdomen, as the lungs, liver, &c.
Viscid, Glutinous; sticky.
Virus, Poison; the foul and contagious matter of an ulcer, &c. &c.
Zootomy, That branch of Natural History, which treats of the forms, classification, habits, &c. of animals, particularly brutes.

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*For the proper indication of purging, see pages 95 to 99.

ERRATA.

Page 22,	line	19	from	top,	*for*	nav*a*l,	*read*	navel.
36,	"	9	"	top,	"	r*o*moved,	"	removed.
48,	"	21	"	bottom,	"	autocratia,	"	autocrateia.
64,	"	23	"	top,	"	œsophaus,	"	œsophagus.
74,	"	2	"	bottom,	"	prespiration,	"	perspiration.
77,	"	18	"	top,	"	f*e*et,	"	feet.
85,	"	18	"	top,	"	Brousais,	"	Broussais.
94,	"	23	"	bottom,	"	humeral,	"	humoral.
96,	"	11	"	bottom,	"	ex*h*uberant,	"	exuberant.
121,	"	21	"	top,	"	id*e*opathic,	"	idiopathic.

Wherever the word *langor* occurs, *read* languor.